

The organisation of Oral and Maxillofacial services

Developing integrated networks of care



British Association of Oral and Maxillofacial Surgeons



GETTING IT RIGHT FIRST TIME

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This document is aimed at the oral and maxillofacial surgery (OMFS) clinical community. It provides an overview of the drivers for the development of hub-and-spoke models of care and sets out the potential benefits. It offers practical advice on developing these networks, including case studies.

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1. Purpose of the guidance

This guidance has been produced following the publication of the GIRFT national report on oral and maxillofacial Surgery. The report, published in November 2018, found that there was significant variation in how oral and maxillofacial surgery (OMFS) services were organised in England, and in access to treatment for some services, for example orthognathic surgery.

In some parts of the country, trusts have worked together to develop hub and spoke models of care. There are opportunities to develop this further. This guidance gives an overview of the drivers for change and the potential benefits, and gives some practical advice on how this might be achieved through looking at case studies which have been made available to GIRFT. We would like to thank those providers who have taken time to share their learning, and hope that it will be of wider interest to the OMFS clinical community.

This guidance should be read in conjunction with specific guidance in relation to COVID-19 published by the British Association of Oral and Maxillofacial Surgeons (BAOMS), located at www.baoms.org.uk, and the Organisation and provision of head and neck cancer surgical services in the United Kingdom (2016)¹



2. Overview of the organisation of current service provision and drivers for change

The OMFS specialty is relatively small with 500 consultants across the UK. As the nature of the surgery has developed and junior training has evolved, most units have come together to work across trusts. In 2002 the OMFS specialty association promoted the creation of larger more effective hub units.²

The two biggest drivers for change are the need to provide a sustainable consultant led facial trauma service with contract compliant on-call rotas of junior doctors/dentists and the need to centralise head and neck cancer services. For cancer services, this move started with the Calman-Hine report in 1995, was subsequently reinforced by the NHS cancer plan in 2000 and then again by the NICE head and neck improving outcomes guidance (IOG) in 2004. A report in 2014 showed a reduction in the number of units offering head and neck cancer services.

Centralisation has led to the emergence of a group of large providers of general and specialist OMFS services, with many smaller OMFS units still in existence. At the time of the publication of the GIRFT report, data illustrated that 30% of trusts performed 50% of activity.

Although it is clear that over the last 20 years a gradual change has taken place, further development is required to strengthen service resilience and patient outcomes. In particular:

- To maintain and improve patient outcomes.
- To support drives to offer equitable access to treatment – particularly orthognathic treatment, where there are significant differences in access currently.

¹ The Journal of Laryngology & Otology (2016), 130 (Suppl. S2), S5–S8. Organisation and provision of head and neck cancer surgical services in the United Kingdom: United Kingdom National Multidisciplinary Guidelines

² Organisation of OMFS Services 2002 – British Association of Oral and Maxillofacial Surgery
<https://www.baoms.org.uk/userfiles/pages/files/Members/Association%20Issues/Organisation%20of%20OMFS%20sevice%20in%20the%20UK.pdf>

- To ensure that units are able to effectively staff operating sessions and on-call rotas, including a separate on-call rota for flap salvage if they undertake cancer surgery.
- To support effective medical training in the specialty.
- To strengthen resilience and sustainability of services.
- To create outpatient clinics, theatres and wards where the concentration of resources promotes individual and team development, research and innovation.

3. Development of hub and spoke models of care

a) Benefits/advantages of an integrated network model

Hub and spoke models have been developed to support providers in avoiding duplication of resources – both physical resources and staffing resources – through the delivery of complex treatments on a single site, while the spoke services continue to be critical to delivery of the network which is supported by integrated management and governance.

The benefits of this type of model include:

Medical staffing benefits

The network brings together senior medical staffing, enabling on-call rotas to be managed efficiently, and to be less onerous on staff. In small units, on-call rotas can both be onerous on the individual, and may lack sustainability and resilience.

Training

The hub and spoke model supports medical training, particularly generating sufficient acute cases (infection/trauma) to have dedicated daytime trauma lists. A strong hub may also enable medical training in spoke Trusts which on their own would not be large enough to support trainees. Hub units can have clinicians whose focus is the delivery and quality assurance of training. They can support trainees in difficulty. The model also supports the development of Advanced Nurse Practitioner (ANP) training, and supports a multi-disciplinary approach.

Co-location of services

The hub and spoke model enables the effective co-location of the hub with other inter-dependencies to support best practice in service delivery.

Patient outcomes

Outcomes are often improved through bringing together activity to increase the volume offered from a single site. A larger consultant body promotes the development of sub-specialty interests to the benefit of patients - these interests may be clinical, educational, administrative or research/audit. In practice, audit arrangements are also easier to implement, providing valuable information in relation to patient outcomes.

Patient experience

The hub and spoke model offers a patient experience which balances outcomes with local access to consultation, day-cases, diagnostics and follow-up at the spoke service. Most patients will continue to receive most of their care on a day-case or outpatient basis in their local hospital. Although specialist surgery would be provided from the hub, ongoing and follow-up care would be delivered locally.

Financial benefits

These may result from a number of areas, including the avoidance of duplication of services, particularly costly technology. Some developments for example robotic surgery, sentinel node biopsies, will only be feasible in larger units due to cost. A network approach may improve access to these technologies. There may also be financial benefits relating to staffing, for example reduced cost of locums to cover rota gaps, and additional payments required for onerous rotas. In some units with low numbers of non-elective admissions, these costs can be substantial.

One Network summarised their experience as follows:

“ Overall, this was the best thing we could have done. It concentrates a large volume of work and provides better training and clinical governance, which is essential for junior doctors and professional development.

Single on-call is better for junior doctor out-of-hours commitments. And to have been able to make on-call less burdensome means that there can be greater availability during normal hours. We have an increased number of consultants, which makes it easier to manage the volume of emergencies on one site.

Effective SLAs are essential to prevent issues associated with service model changes outside of the agreement over time, and it is preferential for all contracts held by the hub trust for service continuity.

Historic problems with transferring records and images from spokes to hubs are becoming less severe with electronic records, which greatly improves the association of network participants.

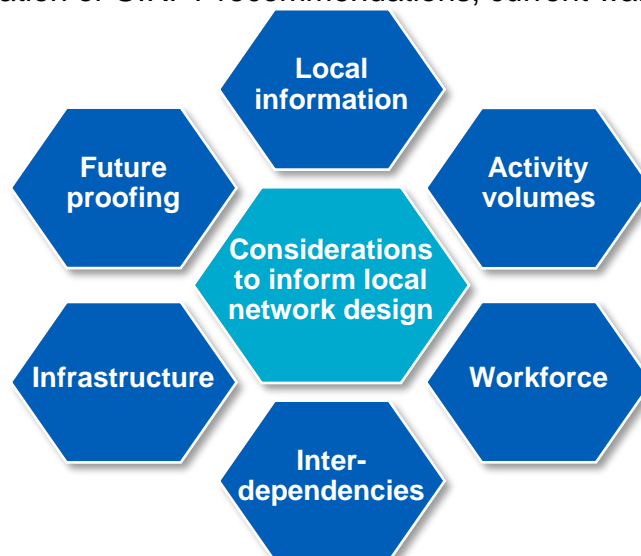
Trust between colleagues is absolutely essential so that a consultant-led ward round at the hub can manage everyone’s patients.

 ”

b) Considerations to inform local network design

The following factors are not intended to be prescriptive, but to identify important factors which should be considered by local systems in assessing service design within the specialty. Additional local information should also be taken into consideration, for example:

- Forecast population changes
- Existing referral patterns
- Consultant recruitment in the local area
- Junior staffing arrangements
- Current delivery – against (for example) specialised commissioning guidance, implementation of GIRFT recommendations, current waiting times.



i) Activity volumes

- Head and neck cancer services are an important sub-specialty within OMFS, and therefore a key factor in the design of a hub and spoke model. The OMFS service will be part of the multi-disciplinary head and neck specialist cancer service. The multi-disciplinary team should treat the Upper Aerodigestive Tract (UAT) cancers, with a minimum of 250 new cases in the specialist service each year.
- The number of head and neck surgical centres will be determined according to population numbers and activity levels. The NHSEI Head and Neck Cancer Service Specification is currently being revised to reflect this. Incidence rates vary significantly across England, so the population catchment of each Network may be configured according to the following population criteria (note these are draft and may be subject to amendment following consultation on the service specification):
 - 1 to 1.6m people – a maximum of 1 Service consisting of only 1 specialist head and neck cancer surgery centre across the entire population.
 - 1.7 up to 2.6m people – up to 2 Services with a maximum of 3 specialist head and neck cancer surgery centres across the entire population.
 - 2.7 up to 6.5m people – up to 3 Services with a maximum of 4 specialist head and neck cancer surgery centres across the entire population.
- Access to orthognathic surgery. The GIRFT report found that access to orthognathic surgery was very different across England. Systems should review local access to services, and consider the implications of the NHSE Commissioning Guide to Orthognathic Surgery, when published. In those areas where the numbers of patients receiving orthognathic surgery are very low, a hub model should be considered.
- Overall volumes of inpatient activity. Units who do not carry out head and neck surgery often have low volumes of remaining inpatient activity which creates difficulties in managing rotas. Where overall volumes are very low this should be taken into account in the design of the hub and spoke model.

ii) Workforce

Units carrying out head and neck cancer surgery need to be large enough to support:

- Two-surgeon, three-session operating lists
- A separate on-call rota for flap salvage
- Adequate consultant numbers to cover annual leave, and
- Adequate numbers of health professionals.

The hub and spoke model should take account of the ability to recruit effectively to ensure the sustainability and resilience of the hub and spoke model. The GIRFT report noted that there is likely to be a link between low levels of orthognathic surgery, and the ability of units to recruit to consultant orthodontic posts. It may be helpful in considering workforce to reflect current access, waiting lists and the ability to offer surgery in tandem with the local orthodontic service so that patients do not have excessively long waiting times between orthodontics and surgery

iii) Co-located services and inter-dependencies

The following service adjacencies should be considered in the design of the hub and spoke model.

- Head and neck cancer services – OMFS surgeons are a key part of the head and neck cancer multi-disciplinary team.
- Critical Care.
- Major trauma – OMFS trauma is a key element within the specialty workload. Those services co-located with a Major Trauma Centre will manage patients of greater complexity (the Major Trauma specification specifies availability of OMFS services within 30 minutes).

iv) Infrastructure requirements

All OMFS services need access to a maxillofacial laboratory, however these vary significantly in the cost and design. Local systems should consider whether a maxillofacial laboratory based at the hub unit should also provide support to spoke units, thus reducing cost and enabling the laboratory to benefit from access to advanced technologies as these become available.

In relation to theatres, the design of the model should ensure there are:

- specialty-specific emergency lists in larger units
- dedicated time in the general emergency lists in smaller units
- best practice guidelines in relation to COVID-19 (particularly aerosol generating procedures)

Some developments for example robotic surgery and sentinel node biopsies, will only be feasible in larger units due to cost. A network approach may improve access to these technologies.

v) Future-proofing

The design of the model should reflect the impact of changes which are envisaged across the local health system and the local population, including the impact of recent guidance relating to the impact of COVID-19 (see baoms.org.uk). Factors for inclusion could include:

- Changes in overall population numbers, and changes within the population, for example the numbers of older people.
- Changes in disease profiles, for example:³
 - The incidence of head and neck cancer, which has risen from 14.8 per 100,000 population (age-standardised) in 1993, to 19.7 in 2017.
 - A significant increase in the incidence of facial skin cancer, with the incidence of melanoma rising from 11.1 per 100,000 in 1993 to 25.9 in 2017.

³ Figures are taken from the National Cancer Registry, and are age-standardised.

- In relation to non-melanoma, the incidence has risen in all age groups, with the greatest increase in the 80+ age group which has seen an increase from 514.8 per 100,000 in 1993 to 1511.5 in 2017.
- The local workforce strategy
- Advances in technology which could impact on the cost and design of hospital services – for example the structure of maxillofacial laboratory services, the role of telemedicine within the network
- Impact of COVID-19 on service configuration and patient flows
- System wide planning – ensuring that networks reflect STP/ICS flows and prioritisation.

c) Network features and governance

Each network design will vary according to local requirements, however the GIRFT deep dive visits identified the following themes

- The hub and spoke model is a managed clinical network of care. The funded structure of the network should include:
 - A network clinical lead, with dedicated time to support of the network including the hub and the spoke(s)
 - A network manager
 - A network Board, with multi-disciplinary representation from hub and spoke units, and primary care. Job plans should ensure that time is included for network activities.
 - Dedicated business intelligence support
- The Network should have the support of each network organisation at executive level. Membership should include representation from local dental services, including the Chair of the Local Dental Network(s), the Oral Surgery Managed Clinical Network and Restorative Dentistry MCN
- The Network Board is responsible for:
 - The management of referral pathways between hub and spoke services, with supporting Standard Operating Procedures (SOPs), ensuring that these reflect commissioned service specifications
 - Reviewing activity across the network, including hub and spoke services, with monthly reviews – including case reviews and activity
 - The delivery of a forward work programme which has the support of the hub and spoke organisations.
 - Network governance. Governance should be embedded within the SOPs of each organisation within the network. Changes to job plans will be required to reflect the agreed SOPs and to take account of (for example) the need to travel between sites.
 - Ensuring that best practice audit requirements are met by each of the organisations forming part of the network.
 - Ensuring that network arrangements, including network membership and patient pathways, are clearly described on Trust websites, ensuring clarity for patients using services. Agreements between Trusts should be described in Service Level

Agreements which outline the responsibilities of hub and spoke units (including hub support to spokes), and the supporting financial agreements.

d) Implementation

The development of ICS across England will support greater collaborative working, changing the current landscape and enabling NHS organisations to work more closely together in integrating service provision, as outlined in the NHS Long Term Plan⁴, and reducing organisational and financial barriers to a change in the organisation of service delivery. Emerging networks should also ensure that they reflect the NHS guidance⁵ on service change which sets out the assurance and consultation requirements on NHS bodies, if the change in the way in which services are delivered, or the location, is considered to be substantial.

In relation to the impact on training, the development of hub units will be an opportunity to develop new models of training for both senior speciality trainees and dentally qualified core trainees. It should not be considered that trainees will only work at the hub unit. The early engagement of local deaneries is therefore of importance in considering such service remodelling

Looking to operational planning and implementation, GIRFT visits identified a number of issues which units described as they had implemented the hub and spoke model. Unsurprisingly, the critical success factor in the implementation of network arrangements related to the level of engagement from organisations and from individual clinicians across the proposed network geography. Concerns which needed to be addressed at the outset generally related to:

- The impact on unit and individual workloads and job plans, including travel requirements and employment arrangements. A number of Trusts considered that consultant contracts should be held by the hub – thus all senior medical staff are employed by the hub trust. Most hubs visited by GIRFT have moved all consultant contracts to the hub. Local systems should also consider how employment contracts should be managed for other staff groups who are working in a hub and spoke arrangement.
- The impact on patient pathways, including travel times. In most networks, day-case and outpatient activity is carried out locally, so longer patient travel is infrequent. Networks will need to consider the local geography and design the network to take account of long travel times in some areas.
- The financial implications. The financial arrangements will vary according to local circumstance, however a financial agreement between the hub and spoke organisations is essential, and should be supported by Service Level Agreements (SLAs). The experiences of the early networked units show that SLAs are essential for consistency in network operation and must be a requirement between networked providers.
- The commissioning and funding of OMFS services is complex in that some services (for example cleft lip and palate services) are commissioned through

⁴ <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf>

⁵ <https://www.england.nhs.uk/wp-content/uploads/2018/03/planning-assuring-delivering-service-change-v6-1.pdf>

NHSE Specialised Commissioning, with a regional footprint and with regional oversight. Trusts should ensure that these financial arrangements are transparent and do not hinder the development of hub and spoke models of care.

4. Conclusion

The GIRFT national report on oral and maxillofacial surgery in 2018 recommended that OMFS should be delivered through local networks to optimise quality and efficiency. To summarise:

- A network should cover a minimum of 300 non-elective admissions per year, and reflect the requirements of the NHSE Service Specification when issued.
- Networks should have clear governance structures which recognise the roles of both the hub and spoke units, and are clearly supported by Service Level Agreements which describe the operational specifications and the supporting financial arrangements between Trusts.
- Trusts should ensure that network arrangements reflect geographical requirements in the local area, and are consistent with local STP and ICS priorities and plans
- Networks should have a clear focus on quality outcomes through audit, and on patient experience, establishing ongoing local audits to monitor outcomes, readmission rates and adherence to network protocols and national standards.

This document sets out some of these issues and opportunities in greater detail, and some of the implementation experience of those systems where network arrangements are already in place.

Appendix 1 – Case studies of hubs-and-spokes networks in OMFS

Example Case Studies – Features of the Network

(Note: the examples below are illustrative, and not a comprehensive list of all network arrangements currently in place).

1. Liverpool Universities Hospitals NHS Trust	
Network Structure	Large established network, with Aintree Hospital as the hub, and 10 spoke hospitals.
Co-located services within the Hub	Head and Neck cancer Major Trauma Centre. Critical Care
SLAs	SLAs in place with some of the spoke services – but not all.
On-call arrangements	24/7 on-call from Aintree Hospital supporting the network. Arrowe Park (spoke) - day time cover for DCTs (Dental Core trainees) and Hospital @ night Countess of Chester (spoke) - 24 hour DCT cover and employs junior OMFS trainees (dentally qualified medical students) at weekends.
Consultant arrangements and contracts	<ul style="list-style-type: none"> All consultants have sessions at the Hub including 1 week as acute care/trauma lead. Consultant contracts not all held by the hub, but ongoing work to consolidate these.
Non-consultant arrangements and contracts	All non training non consultant staff are employed at the spokes except Leighton Hospital where Aintree supplies whole service
Waiting list management	Varies – however Aintree responsible for all patients referred to the hub
2. Bedfordshire Hospitals NHS Foundation Trust	
Network Structure	Established network with Luton and Dunstable University Hospital as the hub with four spoke hospitals.
Co-located services within the Hub	Head and Neck Cancer MDT Critical care Hub not co-located with Major Trauma which is provided at Cambridge University Hospitals.
SLAs	Some SLAs in place – but not with all spoke hospitals
On-call arrangements	24/7 on-call
Consultant arrangements and contracts	Varies – some contracts held by the hub, others by the spokes
Non-consultant arrangements and contracts	
Waiting list arrangements	

3. Oxford University Hospitals NHS Foundation Trust

Network Structure	Established network with John Radcliffe as the hub, and three spoke hospitals. The OMFS unit is based at the John Radcliffe Hospital but they undertake cancer surgery at the nearby Oxford Cancer centre at the Churchill Hospital.
Co-located services within the Hub	Head and Neck cancer (Churchill Hospital) Critical Care (John Radcliffe and Churchill Hospitals) Major Trauma (John Radcliffe)
SLAs	Each spoke has a SLA that is agreed by the hub and spoke.
On-call arrangements	24 hour OMFS on-call at the hub with all NTN's based there. The spokes offer 9-5 on-call with non training grades and consultants who travel to the spokes. Out of hours all queries go the hub, a decision is made on whether the patient needs to be seen out of hours or for admission then the hub arranges this, if not they are booked to a spoke clinic for consultant review. If admission for surgery is needed, this is arranged by spoke communicating with on-call consultant at hub.
Consultant arrangements and contracts	All OMFS consultant contracts held by the hub, with the exception of one spoke (recently joined) where the contract is still held locally. The consultant is part of the hub on-call rota and does elective inpatient operating at the hub, daycases locally in the spoke service. All spokes have assigned OMFS consultants responsible for delivering local OPD, daycases and supervising non training grades
Non-consultant arrangements and contracts	The hub employs local non training grades and each spoke employs non training grades who do not travel to the hub
Waiting list management	Each unit is responsible for their own RTT, but once patients are placed on the hub waiting list, the hub becomes responsible.

4. London Northwest Network (London North West University Healthcare)

Network Structure	Established network with the hub at Northwick Park Hospital and run by London North West University Healthcare NHS Trust. Eight spoke hospitals within the network.
Co-located services within the Hub	Head and Neck Cancer MDT. Provide cover to the Major Trauma Centre at St. Mary's Hospital, part of Imperial College Healthcare NHS Trust
SLAs	SLAs in place with spoke hospitals, however 2 spokes are part of a formalised network with the hub. The remaining 6 hospitals refer patients, but are not part of the formalised network.
On-call arrangements	24 hour on-call cover in place.
Consultant arrangements and contracts	9 consultant contracts held by the hub.
Non-consultant arrangements and contracts	25 non training grade doctors' contracts held by the hub.
Waiting list arrangements	Hub responsible for RTT performance.

5. Queen Victoria Hospital NHS Foundation Trust

Network Structure	Long established network covering the South East, with Queen Victoria Hospital East Grinstead as the hub and 5 spoke hospitals. Tends to also receive patients from a wider area due to its reputation.
Co-located services within the Hub	Hub does not have an Emergency Dept or Major Trauma. They are co-located with a head and neck cancer MDT, a critical care department and an orthognathic MDT.
SLAs	SLAs in place with all spoke hospitals
On-call arrangements	24 hour on-call from the hub covering the network. Daytime cover at some of the spokes.
Consultant arrangements and contracts	All consultants have sessions at the hub and cover one of the spoke sites. 1 week of on-call commitment with elective activity cancelled 1:8. 4 consultants have no on-call commitment All consultant contracts held by QVH except for 2 who remain Eastbourne employees and one who holds a BSUH contract with SLA.
Non-consultant arrangements and contracts	All non-consultant grade staff employed by the Spoke.
Waiting list arrangements	All activity belongs to the hub and managed from there.