

**NHS Consultants in  
Sport & Exercise Medicine:  
a new medical specialty to facilitate a  
physically active population**

**Job Plans & Service Description**

1st edition



**The Faculty of Sport and Exercise Medicine (UK)**  
The Intercollegiate Faculty of Sport and Exercise Medicine  
Patron: HRH The Princess Royal

## **Introduction**

The Intercollegiate Faculty of Sport & Exercise Medicine (FSEM), a Faculty of the Royal College of Physicians of London and the Royal College of Surgeons of Edinburgh was established in 2006. It has the responsibility for creating and developing the new Specialty of Sport & Exercise Medicine.

Its current roles include:

- Setting the Standards in Sport & Exercise Medicine.
- Establishing Sport & Exercise Medicine training requirements and programmes.
- Laying down the Sport & Exercise Medicine Curriculum (subject to PMETB).
- Detailing the competencies required in Sport & Exercise Medicine.
- Running the Sport & Exercise Medicine examination and detailing other assessments required.
- Acting for and representing the Specialty of Sport & Exercise Medicine.
- Bringing the Specialty of Sport & Exercise Medicine together and working with other organisations.
- Sport & Exercise Medicine education.
- Appraisal.
- Research together with the Institute of Sport & Exercise Medicine (ISEM).

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**1<sup>st</sup> Edition**

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## **Abbreviations**

A&E:	Accident & Emergency Department
ACSP:	Australasian College of Sports Physicians
AHSC:	Academic Health Science Centre
BASEM:	British Association Of Sport & Exercise Medicine
BMA:	British Medical Association
BOA:	British Olympic Association
CA:	Clinical Activity
CCT:	Certificate of Completion of Training
CESR:	Certificate of Eligibility for Specialist Registration
CPD:	Continuing Professional Development
CRA:	Clinical-Related Activity
DCC:	Direct Clinical Care
DGH:	District General Hospital
DH:	Department of Health
DipSEM(UK&I):	Diploma in Sport & Exercise Medicine, United Kingdom & Ireland
FSEM(RCPI & RCSI):	The Faculty of Sports & Exercise Medicine, Royal College of Physicians of Ireland & Royal College of Surgeons in Ireland
FSEM(UK):	The Faculty of Sport & Exercise Medicine (UK)
GMC:	General Medical Council
GP:	General Practitioner
HEPA:	Health-enhancing Physical Activity
IABSEM:	Intercollegiate Academic Board in Sport & Exercise Medicine
IOC:	International Olympic Committee
ISEM:	The Institute of Sport & Exercise Medicine (The research arm of FSEM(UK))
MD:	Doctorate of Medicine Degree
MDT:	Multi-disciplinary Team
MSc:	Master of Science Degree
MSF:	Multi-source Feedback
MSK:	Musculoskeletal
NHS:	National Health Service
NICE:	National Institute for Health & Clinical Excellence
ONS:	Office for National Statistics
PA:	Programmed Activities
PCT:	Primary Care Trusts
PH:	Public Health
PhD:	Doctorate of Philosophy Degree
PMETB:	Postgraduate Medical Education and Training Board
RCP:	Royal College of Physicians, London
RCSEd:	Royal College of Surgeons of Edinburgh
SEM:	Sport & Exercise Medicine (synonymous with the phrase 'Sports & Exercise Medicine')
SHA:	Strategic Health Authority
SPA:	Supporting Professional Activities
SpR:	Specialist Registrar
StR:	Specialty Registrar
WTE:	Whole Time Equivalent

## **EXECUTIVE SUMMARY:**

### Sport & Exercise Medicine within the context of the NHS

In the United Kingdom, people have become less physically active resulting in an explosion of diseases associated with physical inactivity.

Heart disease, diabetes, stroke, obesity, osteoporosis, elderly frailty, dementia, certain types of cancer and low back pain are some of the most recognisable conditions for which there is a causal link to physical inactivity. The Foresight Report has predicted that unless the trend towards physical inactivity is reversed, the cost of managing these expensive diseases will eventually become unsustainable.

Physical inactivity has become one of the most important modifiable risk factors in modern life. The problem is now well recognised, generating several DH papers, the latest of which "Be Active, Be Healthy (2009)", outlines the plan for the UK to become a more physically active nation.

The SEM Physician sits at the heart of this agenda- at one extreme able to facilitate the physically inactive towards Health-enhancing Physical Activity (HEPA), and at the other to maintain the healthy lifestyles of those who have developed problems as a result of their physically active lifestyles, exercise or sport.

In February 2005, the Department of Health announced plans for the development of the speciality of SEM. In August 2009, the first cohort of SEM Specialty Registrars to have completed specialist training will become eligible to work as Consultants in SEM within the NHS.

### Workforce Planning

In the non-sporting active population, the incidence of musculoskeletal injury is approximately 2/1000hrs of activity (1/1000 for Walking, 4/1000 for jogging). Given these figures, it is expected that one in six people engaged in the recommended amount of physical activity will be injured each year. This equates to 1.5 million musculoskeletal injuries per year.

In the sporting population, the risk and incidence of injury is exponentially higher. In 1990, there were estimated to be 9.8 million sports injuries per year requiring medical attention. This represents approximately one injury per person per year in the 16-45 year old age group.

In total, these two groups generate 11.3 million injuries per year. In England, this would yield an average of approximately 75,000 musculoskeletal injuries per year, per PCT, assuming even distribution.

The burden of physical-activity related musculoskeletal injuries is considerable, and will rise if the laudable aim of increasing health-enhancing physical activity (HEPA) is achieved. As HEPA increasingly becomes a part of DH strategy, exercise specialists with the ability to safely engage moderate and high-risk patients in HEPA will be needed for implementation at grassroots level. With the urgency to create a more physically active nation, SEM Specialists will also be required in PCTs to promote HEPA in the low-risk majority.

There are 152 PCTs in England with similar organisational arrangements existing proportionately in the devolved nations. An aim of one Consultant SEM Physician in every PCT, whilst creating a critical mass of specialists able to begin the work, would still only represent one Consultant SEM Physician for every 260,000 people (the average population of a PCT).

Ongoing audit of the clinical workload of practicing SEM Physicians will enable accurate workforce planning, though in the short term an estimated range of **150-300 Consultant SEM Physicians in England alone** (1 or 2 per PCT) represents a realistic starting point. Given the burden of musculoskeletal injury and the expanding role of Exercise Medicine, these consultants would expect to experience a significant and consistent workload.

The population of the UK is currently just under 61 million people. If we consider the whole of the UK, then a proportionate increase in this number would (according to population) yield a requirement in the range of **180-360 Consultant SEM Physicians within the UK**. Given the current number of SEM trainees, it may take many years for this number of consultants to be trained.

It is worth noting that in the year 2000, the Australasian College of Sports Physicians (ACSP) estimated that their population of 21 million people would require a workforce of at least 200 senior Sports Physicians. If we extrapolated those figures to the UK for the sake of comparison, the figures would be **closer to 600 Consultant SEM Physicians within the UK**.

#### An NHS SEM Consultant Job Plan & Description

Table 1 below outlines the type of clinics a Consultant SEM Physician may provide.

**Table 1: Types of SEM Clinics**

Sports Medicine Clinic	Acute & chronic musculoskeletal injuries & medical problems related to participation in physical activity, exercise or sport. Referral via GP, Consultant or Physiotherapist.
(Rapid Access) Soft-tissue Injury Clinic	The equivalent of Fracture Clinic to a SEM Physician. The clinic permits rapid access to a Consultant SEM Physician (via referrals from A&E) for acute soft tissue injuries related to exercise.
Exercise Medicine Clinic	Exercise testing and prescription. exercise ECG, VO <sub>2</sub> Max, strength measurement, balance & training plans. To facilitate the use of exercise in the management of chronic medical conditions such as cardiac and pulmonary diseases, diabetes, obesity, osteoporosis and elderly frailty
Supervised Exercise Prescription	Supervision of moderate and high-risk patients engaging in Health-enhancing Physical Activity (HEPA); cardiac and pulmonary rehabilitation, falls rehabilitation, brittle diabetes, weight management, improving physical fitness.
Workplace Wellness	In conjunction with Occupational Health, the Consultant SEM Physician is ideally suited to lead a hospital or PCT Wellness programme to improve the health of the workforce.
PCT Public Health	Consultant SEM Physicians may work in a PH office involved in strategy and projects related to improving public health through physical activity.

Musculoskeletal Procedures Session: A) Musculoskeletal ultrasound-guided injections	Consultant SEM Physicians may be skilled in musculoskeletal ultrasound and provide lists of their own in partnership with a department of diagnostic radiology for diagnostic and/or therapeutic purposes.
Musculoskeletal Procedures Session: B) Intracompartmental pressure testing	Consultant SEM Physicians may be skilled in the use of dynamic or non-dynamic intracompartmental pressure testing. This is useful in diagnosing recurrent exertional compartment syndrome of the upper and/or lower limbs.
Musculoskeletal Procedures Session: C) Spinal and peripheral joint injections	These include caudal and lumbar epidurals, facet joints, nerve root, hip and peripheral joints for the management of back and joint pains.
Musculoskeletal Triage Clinic	Expert triage of GP musculoskeletal referrals can reduce inappropriate referral to hospital specialists.
General Musculoskeletal Medicine Clinic	Management of musculoskeletal-related disorders not specifically of a sporting nature in both active and inactive patients. This would usually exclude patients with known inflammatory disorders who would be seen by the Rheumatologists.
Combined/MDT Musculoskeletal Clinic	<p>Management of patients with complex musculoskeletal disorders via a multi-disciplinary team approach by having all relevant specialties at a 'one-stop shop'. The associated specialties would likely include SEM Physicians, Musculoskeletal Radiologists, Rheumatologists, Orthopaedic Surgeons, Physiotherapists and Podiatrists.</p> <p>Such a clinic would usually be held in the setting of a tertiary referral centre and be used to generate research leads and to develop a world-class service. The clinic would likely be held fortnightly or monthly, dependent on the local service needs.</p>



Table 2 illustrates the specimen weekly job plan for the Consultant SEM Physician who has equal commitments to both Musculoskeletal Injury & Exercise Medicine.

Three other specimen job plans are also included within the full document.

**Table 2: Specimen weekly consultant job plan**

<b>Activity</b>	<b>Workload</b>	<b>Programmed Activities (PA's)</b>
<b>Direct Clinical Care (DCC)</b>	2-3 injury/musculoskeletal clinics and associated administration (1.25 PA's per clinic)	2.5-3.75
	2-3 exercise medicine clinics and associated administration (1.25 PA's per clinic)	2.5-3.75
	1 exercise prescription session and associated administration (1.25 PA's per clinic)	1.25
<b>Total No. DCC PA's</b>		<b>7.5 on average</b>
<b>Supporting Professional Activities (SPA's)</b>	Undergraduate and Postgraduate education, junior doctor and allied staff training, mentoring, appraisal, audit, governance, departmental management, service development, research, CPD and revalidation	<b>2.5 on average</b>
<b>Other NHS Responsibilities</b>	e.g. clinical tutor, lead consultant, clinical director, medical director	Local agreement with trust
<b>External Duties</b>	e.g. work for FSEM, deaneries, Royal Colleges, Department of Health, other specialist societies	Local agreement with trust

## **Foreword**

SEM is a new medical specialty that is novel and unique in what it can offer the NHS. It was only formally recognised in 2005 despite flourishing outside of the NHS for many years. The British Association of Sport & Exercise Medicine (BASEM) is the specialty association and was established in 1953. Whilst much emphasis has been made on recruiting and training doctors for future SEM roles, there are currently very few NHS consultant posts.<sup>1,2</sup> This is partly due to a lack of knowledge of the presence of SEM as a specialty, what it entails and what services can be offered.

This document aims to detail the envisaged role that NHS SEM consultants will perform and outline a possible consultant job plan and service description. A consultant job plan should be a prospective agreement that sets out a consultant's duties, responsibilities and objectives for the coming year.<sup>3</sup>

## **The Historical & Sociological Context Of Sport & Exercise Medicine**

In the United Kingdom, people have become less physically active resulting in an explosion of diseases associated with physical inactivity.<sup>4</sup> Heart disease, diabetes, stroke, obesity, osteoporosis, elderly frailty, dementia and low back pain are some of the most recognisable conditions for which there is a causal link to physical inactivity.

The Foresight Report<sup>5</sup> (2007) supports the conclusions of the Wanless Report<sup>6</sup> (2004) and predicted that unless the trend towards physical inactivity is reversed, the financial cost of managing these expensive chronic diseases will eventually become unsustainable.

Physical inactivity has become one of the most important modifiable risk factors in modern life. The problem is fortunately now well recognised, generating several DH reports, the latest of which "Be Active, Be Healthy (2009)"<sup>4</sup>, outlines the plan for the UK to become a more physically active nation.

The SEM Physician sits at the heart of this agenda. At one extreme, they are able to facilitate the physically inactive towards Health-enhancing Physical Activity (HEPA) and at the other, to maintain the healthy lifestyles of those who have developed problems as a result of their physically active lifestyles, exercise or sport.

In February 2005, the Department of Health announced plans for the development of the speciality of SEM. This followed many years of campaigning by BASEM, IABSEM and latterly with the help of UK Sport and the Rt Hon Richard Caborn, MP (then Minister for Sport). Following the announcement, the creation of the speciality of SEM was incorporated into the London 2012 Olympic bid presented to the IOC, the intent being that the Games would produce a lasting legacy for improving health and increasing levels of physical activity for the whole UK population.<sup>7</sup>

On Wednesday 6th July 2005, London successfully won the right to host the Olympic Games in 2012. Parliament subsequently amended the Specialist Medical Order in September 2005 to create the new speciality, and the first group of Registrars began specialist training in February 2007 in the London Deanery.

The IABSEM became the FSEM(UK), with RCSEd and RCP acting as host colleges for the speciality.

## **The Role Of The Specialist Doctor (Consultant) In Sport & Exercise Medicine**<sup>8</sup>

Sport & Exercise Medicine specialists currently work in a variety of settings across primary and secondary care, including:

- Primary Care Trusts (England)
- NHS Hospitals: teaching and district general

- Health Boards (Scotland)
- Military
- Private practice
- Corporate settings: employee health and wellness
- Sport: professional and amateur, as National Governing body, Team or Event Physicians

SEM also has the potential to contribute beyond these existing parameters and, in particular, may have a key role in developing new approaches to healthcare and promoting population health. Such roles could include roles and responsibilities at the level of the Strategic Health Authorities in England, the Health Boards in Scotland, the devolved national administrations and the Department of Health.

SEM is a specialty founded on the disease and wellness models of medicine. It is through the latter, in particular, that SEM Physicians in the future can play a leading and vital role in helping determine the Health of the Nation.

The role of the specialist doctor (Consultant) in Sport & Exercise Medicine reflects the 'broad church' of the specialty training curriculum and spans primary, secondary and tertiary care. It includes:

- A) The use of physical activity and exercise as a health tool for primary and secondary disease prevention in:
  - o The general population.
  - o At risk populations.
  - o Moderately disabled/sick population.
  - o Very disabled/sick population.
  
- B) Physical activity in special groups such as pregnancy, diabetes, cardio-vascular disease, mental health, the overweight and obese, children and older adults (many of whom have complex co-morbidities).
  
- C) Physical activity in all groups where such activity is limited by co-existing musculoskeletal morbidities. Appropriately prescribed exercise and other treatments may help both illness and musculoskeletal problems using physiotherapy, nutrition, psychology, musculoskeletal and general medicine as part of multidisciplinary teams.
  
- D) To lead or support multi-disciplinary teams to deliver exercise programmes for health and wellness, including to those who are currently sedentary.
  
- E) Population health working with colleagues in Public Health and other disciplines, with the NHS and in the broader arena for Health and Wellness.
  
- F) Musculoskeletal medicine: Management of soft tissue injuries with specific focus on exercise and sport related injuries. This will involve working with musculoskeletal radiologists, biomechanists, physiotherapists, osteopaths and orthopaedic colleagues in order to minimise the time off work and sport caused by musculoskeletal injuries and thus reduce morbidity and the number of patients progressing to surgery or unnecessary prolonged disability. It will also enhance rehabilitation and recovery after surgery.
  
- G) Working with elite sportsmen and women to assist them in maximising performance (within international rules), reducing injury time and minimising the co-morbidity associated with elite sporting participation through research, engagement with sporting bodies and appropriate talent identification.
  
- H) Contribute to accident and emergency services involving sport and musculoskeletal injuries by establishing and keeping close links with colleagues

in Emergency Medicine and maintaining skills in the management of medical and trauma emergencies.

I) Psycho-social aspects of Sport & Exercise Medicine. Psychology of exercise and health promotion. Work with psychiatric and psychology colleagues, and other professionals working in mental health services to use exercise in the management of mental illness and the promotion of mental health.

J) Rehabilitation of both able and disabled sportsmen and women of all standards to expedite return to physical activity, work and increase participation in sport. This would include treating and rehabilitating injuries acquired by those involved in dance and the performing arts. SEM Physicians typically do not have inpatients, although on exceptional occasions patients may attend for a period of intensive rehabilitation requiring overnight stay.

K) Sport & Exercise Medicine audit and research across the range of the speciality from the use of exercise in the treatment of disease, to rehabilitation after surgery, to treatment of soft tissue injuries and the promotion of population health.

L) Working with Public Health colleagues, the Department of Health and the NHS in the delivery of national and local policies aimed at enhancing health and wellness.

### **Training & Development Of The SEM Consultant**

Most Consultant SEM Physicians will be accredited medical specialists who hold the CCT or CESR in SEM awarded by PMETB following completion of specialist training. The award of CCT or CESR allows entry onto the specialist register.

They will be medically qualified and Fellows of FSEM(UK) and/or FSEM(RCPI & RCSI). Many consultants will also hold a diploma or higher degree (usually an MSc degree) from a tertiary educational institution and/or FSEM(UK)-accredited Diploma in SEM.

Higher specialty training in SEM is undertaken as a Specialist Registrar (pre-August 2007) or Specialty Registrar (post- August 2007) in SEM. SpRs/ StRs in SEM will usually have rotated through the specialties of Sport & Exercise Medicine, Emergency Medicine, General Practice, Public Health Medicine, Orthopaedics, Rheumatology and Rehabilitation Medicine as part of their training.

### **Employment of The NHS SEM Consultant**

Consultants are employed within the NHS on national terms and conditions of service.<sup>9,10</sup>

A new contract of employment was introduced in 2003, resulting in a majority of job plans being based on a 40-hour, 10-session programmed activity (PA) contract. These broadly require 7.5 sessions of four hours each to be devoted to clinical care and allow 2.5 sessions for supporting activities (SPAs).<sup>10</sup>

A directorate job plan is in effect in many trusts. Roles, responsibilities and tasks are detailed for the directorate, and individual job plans are created to fulfil these requirements. Some clinicians work more than 7.5 sessions of clinical practice, others less and some take on a greater teaching or research load. This is good practice and ensures that the directorate and individual clinicians play to their strengths. Not everyone needs or benefits from a standard, fixed allocation of clinical and supporting activities.

This is a time-sensitive contract, rather than a contract driven by responsibility. Not all clinical sessions are 'hands on' – they include discussions with relatives and carers, writing notes, clinic letters and communicating with others.

The current contractual arrangements for doctors allow alternatives to the standard eight-hour, five-day week. This flexibility can mean longer days, shorter days, or less-than-full-time 10 PA working. Some doctors work more than 10 sessions and are paid accordingly, though sessions greater than 10 do not generate NHS pensionable income.

Those doctors who begin work on full-time contract and who later, perhaps because of increased childcare needs, wish to work less than full time, can request to do so. That request must be considered by their employer, but not necessarily agreed to as service demands may not allow it. However, negotiation and compromise is often in the long-term interest of both parties and generally produces sensible and acceptable outcomes.<sup>11</sup>

### **The Changing Role Of The Consultant**

It is recognised and expected that a consultant's role will evolve during their career. This typically will involve an initial period establishing and improving clinical practices, the adoption and evolution of new responsibilities within their hospital environment and the undertaking of educational and leadership roles at local and national levels.

This is certainly true for all consultants regardless of their speciality and will be valid for Consultant SEM Physicians. As an established specialty, SEM is in its infancy and will evolve over time. For example, new therapeutic techniques and concepts may be developed and adopted within SEM that have not been considered in this document.

### **Organisation of Services & Patterns of Referral**

#### *A) Primary, Secondary and Tertiary Levels Of Service:*

- **Primary Care:** SEM specialists may operate a musculoskeletal triage service within a primary care setting or when providing outreach clinics, be based in a PCT for the convenience of patients.
- **Secondary Care:** SEM specialists will work in a multi-disciplinary team based in outpatient settings. The clinical service should include access to radiological imaging and cardio-respiratory testing facilities. Appropriate referrals to a sports injury/musculoskeletal clinic would include sports injuries and those musculoskeletal conditions not requiring surgery or without a clear rheumatological cause. Emphasis would be placed on early referral, diagnosis and intervention in order to reduce morbidity and subsequent load on primary care budgets.

Referrals to an exercise medicine clinic would be made for one or both of the following reasons: risk assessment of a patient's ability to exercise (in the presence of cardiac risk factors or any chronic condition), advice on how to exercise safely in the presence of risk factors or a chronic condition (initially this may include supervised exercise within a hospital setting for high risk patients). Patients suitable for referral would include those with cardiac risk factors or disease but also respiratory, rheumatological, neurological or other system chronic disease. SEM services would work closely with occupational medicine, cardiac, respiratory, endocrine and obesity services.

- **Tertiary Care:** Highly specialised services may be provided on a tertiary referral basis or where SEM services are not available local to the patient. Examples may include high risk patients needing exercise assessment, patients requiring novel injection therapies or those needing specific diagnostics.

#### *B) Clinical Networks And Community Arrangements:*

- SEM is, by its nature, a specialty which is able to be flexible to and develop according to the needs of the local population. Criteria for referrals depend on local need. For

example, in the presence of a musculoskeletal triage service, certain criteria may mean a patient's first contact is with a SEM specialist.

- Similarly, referral guidelines for exercise services are determined according to the local situation taking into account existing resources such as cardiac and pulmonary rehabilitation programmes and any community exercise prescription services.

*C) Relationship With Other Services/Agencies:*

- In order to provide a complete service for all patients, multidisciplinary team working with allied health professionals is essential. This would include Physiotherapists, Exercise Scientists, Osteopaths, Podiatrists, Clinical Psychologists and Dieticians.
- Outside of the secondary care setting, close links with community exercise programmes and Public Health departments are essential.

### **Revalidation**

All practising doctors will be required to be revalidated on a five year cycle starting in 2010. There are two components to revalidation: relicensing and recertification.

Relicensing will be a responsibility of the GMC and is required to practice. Recertification is a requirement for specialists and is the responsibility of the relevant Royal College. For SEM, this will be FSEM (UK).

Full details of the components of revalidation have yet to be finalised but will likely involve appraisal, multisource feedback assessment, review of recorded concerns and CPD. It is expected that employment contracts will stipulate necessary compliance with the revalidation process and provide appropriately funded study leave.

### **Working With Patients**

*A) Involving Patients In Decisions About Their Treatment:*

Patients should be fully involved in decisions about their course of treatment.<sup>12</sup> As much musculoskeletal and physical activity-related management requires the inclusion of rehabilitation exercises on a daily basis or a significant change in lifestyle, it is essential that patients are able to engage with this process.

*B) Availability Of Clinical Records/Results:*

As well as being the right of all patients<sup>12</sup>, there are particular instances where it may be useful for patients to carry parts of their medical records in order to help the transfer of information on rehabilitation guidelines between exercise and health care professionals.

*C) Ethical And Religious Considerations:*

SEM services should be sensitive to the cultural and language needs and beliefs of the population they are serving. This includes availability of written translations and interpreters.

*D) Opportunities For Education:*

Expert patient programmes may be of benefit to patients with chronic conditions undergoing rehabilitation or trying to increase their physical activity.

### **Interspecialty & Interdisciplinary Liaison**

In order to be effective, the SEM specialist must have a close working relationship with the Multi-disciplinary team (MDT) including, but not limited to Physiotherapists, Radiologists,

Orthopaedic Surgeons, Rheumatology and Rehabilitation Physicians, Occupational Therapists, Podiatrists, Psychologists, Exercise Physiologists, Osteopaths and Therapists.

Uniquely when working with Sportspeople, the SEM specialist may also have a close working relationship with Team Managers and Coaches as part of a team.

Consultant SEM Physicians may often co-ordinate outpatient services in the form of a combined clinic, working firsthand with a designated Physiotherapist who is a dedicated member of the SEM team. In addition, the team may hold regular X-ray meetings with Musculoskeletal Radiologists to co-ordinate care in complex cases.

In the provision of Exercise Medicine services, the SEM specialist will need to liaise with Cardiologists, Respiratory Physicians, Diabetologists and Occupational Medicine Physicians in co-ordinating exercise testing & prescription for patients with medical conditions. In the supervision of prescribed exercise, a qualified Exercise Therapist is essential.

### **Delivering A High Quality Service**

SEM has traditionally been strong on multi-disciplinary interaction. Consultant SEM Physicians will not necessarily deliver all of the treatment modalities in their armoury but often lead in coordinating them. For SEM to deliver an effective service, sufficient resources need to be in place and these typically include physiotherapy, podiatry & biomechanical analysis and radiology (including X-ray, CT, MRI, Bone Scanning and Ultrasonography services).

### **Quality Standards & Measures**

As SEM becomes a firmly established medical specialty, it is envisaged that specialist society guidelines (produced by FSEM(UK), FSEM(RCPI& RCSI) and BASEM) will be developed for SEM-specific conditions. It is also envisaged that both Faculties will have input into guidelines produced by national organisations such as NICE or the BMA, where the subject matter is relevant to SEM. All such guidance will have to be auditable.

### **Delivering A Cost-effective Service**

It is expected that a SEM service will be cost-effective. Preliminary figures provided by a SEM Physician working within the NHS revealed cost savings in the year 2006 in the region of several hundred thousand pounds when compared to traditional models of care. This figure was arrived after a commissioned managerial review was undertaken and is thought to be a conservative figure.

Data from concurrent audits carried out by the same clinician revealed that the concern by some that patients referred by their GPs to see a SEM Physician might subsequently require another GP referral to see a different specialist (e.g. an Orthopaedic Surgeon) for the same problem was unfounded. (*personal communication, Marfleet P, 2009*)

### **Existing SEM Clinical Services Within The NHS**

Various models of care are utilised by the few NHS SEM clinics that currently exist. Within the secondary and tertiary care settings, these include (but are not limited to) NHS organisations such as Bart's & The London NHS Trust, Belfast Health & Social Care Trust (in Northern Ireland), Cambridge University Hospitals NHS Foundation Trust, Leeds Teaching Hospitals NHS Trust, Newham University Hospital NHS Trust, Nottingham University Hospitals NHS Trust, Nuffield Orthopaedic Centre NHS Trust, Royal National Orthopaedic Hospital (Stanmore) NHS Trust, Royal Orthopaedic Hospital (Birmingham) NHS Foundation Trust, Sheffield Teaching Hospitals NHS Foundation Trust and University Hospitals of Leicester NHS Trust.

Within the 'intermediate care' setting (whereby the SEM Physician is able to provide secondary care services but within a primary care environment), some PCTs have also commissioned SEM clinics. These include (but are not limited to) Colchester PCT and Oxfordshire PCT.

### **Direct Clinical Care**

Consultant SEM Physicians working 10 PA's would expect to contribute 7.5 PA's to Direct Clinical Care, with 2.5 PA's in Supporting Professional Activities. Given that SEM is an entirely outpatient-focused specialty, a SEM Physician may expect to hold 4-5 clinics per week. A typical clinic would attract 1.25 PA's (1 CA & 0.25 CRA).<sup>9</sup>

Table 3 below outlines the type of clinics a Consultant SEM Physician may provide.

**Table 3:**

Sports Medicine Clinic	Acute & chronic musculoskeletal injuries & medical problems related to participation in physical activity, exercise or sport. Referral via GP, Consultant or Physiotherapist.
(Rapid Access) Soft-tissue Injury Clinic	The equivalent of Fracture Clinic to a SEM Physician. The clinic permits rapid access to a Consultant SEM Physician (via referrals from A&E) for acute soft tissue injuries related to exercise.
Exercise Medicine Clinic	Exercise testing and prescription. exercise ECG, VO <sub>2</sub> Max, strength measurement, balance & training plans. To facilitate the use of exercise in the management of chronic medical conditions such as cardiac and pulmonary diseases, diabetes, obesity, osteoporosis and elderly frailty
Supervised Exercise Prescription	Supervision of moderate and high-risk patients engaging in Health-enhancing Physical Activity (HEPA); cardiac and pulmonary rehabilitation, falls rehabilitation, brittle diabetes, weight management, improving physical fitness.
Workplace Wellness	In conjunction with Occupational Health, the Consultant SEM Physician is ideally suited to lead a hospital or PCT Wellness programme to improve the health of the workforce.
PCT Public Health	Consultant SEM Physicians may work in a PH office involved in strategy and projects related to improving public health through physical activity.
Musculoskeletal Procedures Session: A) Musculoskeletal ultrasound-guided injections	Consultant SEM Physicians may be skilled in musculoskeletal ultrasound and provide lists of their own in partnership with a department of diagnostic radiology for diagnostic and/or therapeutic purposes.
Musculoskeletal Procedures Session: B) Intracompartmental pressure testing	Consultant SEM Physicians may be skilled in the use of dynamic or non-dynamic intracompartmental



	pressure testing, This is useful in diagnosing recurrent exertional compartment syndrome of the upper and/or lower limbs.
Musculoskeletal Procedures Session: C) Spinal and peripheral joint injections	These include caudal and lumbar epidurals, facet joints, nerve root, hip and peripheral joints for the management of back and joint pains.
Musculoskeletal Triage Clinic	Expert triage of GP Musculoskeletal referrals can reduce inappropriate referral to hospital specialists.
General Musculoskeletal Medicine Clinic	Management of musculoskeletal-related disorders not specifically of a sporting nature in both active and inactive patients. This would usually exclude patients with known inflammatory disorders who would be seen by the Rheumatologists.
Combined/MDT Musculoskeletal Clinic	Management of patients with complex musculoskeletal disorders via a multi-disciplinary team approach by having all relevant specialties at a 'one-stop shop'. The associated specialties would likely include SEM Physicians, Musculoskeletal Radiologists, Rheumatologists, Orthopaedic Surgeons, Physiotherapists, Psychologists and Podiatrists. Such a clinic would usually be held in the setting of a tertiary referral centre and be used to generate research leads and to develop a world-class service. The clinic would likely be held fortnightly or monthly, dependent on the local service needs.

### **Leadership Role & The Introduction Of Service Developments**

The Consultant SEM Physician will lead and co-ordinate a multi-disciplinary team to manage musculoskeletal disorders and patients with complex medical problems requiring a safe and effective exercise prescription. The composition of the team will be flexible and depend on the skills that are required locally.

Many of these services may be completely new to the NHS, or the local Hospital Trust or PCT to which the new Consultant is appointed. This will require the creation of *de novo* working practices, setting up new types of clinics, and leading on the use of exercise as a therapeutic modality alongside the traditional mainstays of drugs and surgery. This is in accordance with recent DH guidance to SHAs to promote a culture of encouraging innovative and effective ways of working<sup>13</sup> and is also in keeping with DH guidance on promoting 'world class commissioning' within PCTs.<sup>14</sup>

Whilst most doctors focus entirely on patient sickness, Consultant SEM Physicians may also work proactively with NHS Staff and the general public to enhance their health fitness and productivity.

Consultant SEM Physicians will be required to provide leadership, inspiration and motivational skills to promote the idea of physical activity for the prevention of ill-health. Although not a new concept, a great deal of work remains to bring physical activity into the core of every patient consultation. They will work alongside Public Health departments to integrate physical activity into the daily practice and thinking of all health professionals, and raise its profile among the public.

## **Education & Training**

As one of the UK's newest medical specialities, undergraduate education and postgraduate training are essential to ensure the discipline thrives and moves forward. SEM should be introduced into the undergraduate medical curriculum. Consultant SEM Physicians possess a unique core of knowledge and skills which physicians from other specialities may be unfamiliar with and are able to bring all these skills together to seamlessly co-ordinate their use.

Consultant SEM Physicians will also play a pivotal role in disseminating this knowledge to health professionals and patients. The need to educate and mentor the next generation of medical students, junior doctors, GP's, Consultant colleagues and allied health professionals about musculoskeletal injury and exercise medicine is paramount considering they are usually significantly under-represented areas of the medical curriculum.

### **Case Study:**

Consider the case of a 50 year old man with a strong family history of heart disease. He has been diagnosed with hypertension and has a BMI of 28. He has recently decided to take up jogging to improve his health and help him to lose weight. This is a positive lifestyle choice but possibly not entirely without risk given his family history of heart disease!

Within a month, he starts to develop a persistently painful knee and makes an appointment to see his family doctor. Traditionally, the standard primary care advice would be to stop running completely until the pain settles and take an over-the-counter analgesic such as Ibuprofen. This works in certain cases but in others, can leave the patients feeling frustrated and demotivated to exercise.

If the patient were to subsequently resume jogging again without addressing the underlying issues, this pain would be likely to recur. This is not an uncommon scenario.

In this situation, a Consultant SEM Physician would be able to provide the diagnosis of likely 'Patellofemoral Pain Syndrome' (due to abnormal gait biomechanics and running technique) and manage the injury in the outpatient setting. At the same time, he/she would also be able to engage the patient in a tailored exercise programme that is both safe and effective, thus reducing his cardiac risk and treating his musculoskeletal injury at the same time.

## **Research**

An important component of the Consultant SEM Physician's work will be to engage in research to elucidate effective treatments in the spheres of musculoskeletal and exercise medicine. The GMC document entitled 'Good Medical Practice' states that research involving people directly or indirectly is vital in improving care, reducing uncertainty for patients now and in the future and improving the health of the population as a whole.<sup>15</sup>

It is essential to develop a substantial research infrastructure and vibrant research culture in SEM both within the UK and internationally. A focused and comprehensive research base will inform how we can promote more active lifestyles and a higher level of participation at all levels. This research will help to define the barriers to participation and promote lifelong involvement in SEM.<sup>16</sup>

Lifelong learning, as a part of CPD, is also essential. It is envisaged that certain areas of research interest may stimulate a desire to work towards a MD or PhD research qualification during a Consultant SEM Physician's career. This is to be encouraged, especially if centres of excellence in SEM are to be developed.

## **Mentoring & Appraisal Of Medical Staff & Other Professional Staff**

Within the specialty, appraisal follows individual trust requirements and is often carried out within clinical disciplines (For example, doctors are appraised by their fellow doctors or within departments.) Given the multidisciplinary nature of the SEM team, there may be interest in utilising 360-degree multi-source feedback (MSF) to enhance the quality of information gathered for the appraisal of the Consultant SEM Physician and other professional staff.

## **Clinical Governance**

Consultant SEM Physicians aim to offer patients high quality patient-centred care for their individual clinical needs. Systems for clinical governance vary between trusts, but as a new speciality there is the opportunity to build audit and evaluation into our working practices from the very beginning. This should be reflected in consultant job plans and contracts.

A plethora of novel therapeutic modalities fall within the spectrum of SEM but many have yet to undergo rigorous scientific scrutiny. As such, Consultant SEM Physicians will need to establish evidence-based care pathways and audit their effectiveness. In line with all other medical specialties, they will play an important role in striving for a high-quality evidence-driven practice.

## **Regional & National Work**

Consultant SEM Physicians may work at national level with DH, NHS Institute for Innovation and Improvement or at a regional level within PCTs and departments of Public Health to promote HEPA in the UK community.

They may also play a significant role in planning medical services for past and present major sporting events such as the London 2012 Olympic Games, Manchester 2002 & Glasgow 2014 Commonwealth Games, Football and Rugby World Cups; and mass participation sports events like the London Marathon, Great North Run and regional Triathlons to name but a few.

SEM has a number of national committees formed from the ranks of BASEM, FSEM(UK), BOA and the RCP. These committees co-ordinate national projects such as educational conferences and courses, national guidelines, research priorities, training and accreditation. Consultant SEM Physicians may be active members of any of these committees.

An example of the essential work they do is developing the 'Exercise for Life' project, a web-based tool to assist GP's and other allied health professionals in safely prescribing exercise for patients.

Given the relatively small body of Consultant SEM Physicians in the country, it is anticipated that a large proportion would be actively involved in one or more of these committees.

## **Academic Medicine**

Some SEM specialists may choose to become involved in academia. They may have several roles:

- **A) Clinical Contribution To The NHS**  
Academic Consultant SEM Physicians provide clinical support through outpatient work. This in turn allows the key issues facing patients to influence research foci.
- **B) Teaching**  
Academic Consultant SEM Physicians may also lead on the organising of undergraduate and postgraduate teaching. The emphasis of exercise as a health

tool, musculoskeletal diagnosis and management all has increasing relevance to the undergraduate programme.

MSc's and Diplomas in SEM are increasingly popular and their teaching is enhanced by staff who have academic as well as clinical experience. Given the cutting edge nature of the specialty, training in research methods at all levels is important.

- **C) Research**

As a newly developing specialty with relatively few numbers of practitioners nationwide, there are unique opportunities for collaborative studies. New ways of tackling pain and moderating pathology are constantly emerging and it is important that these are trialled to rigorous standards in order that they may become established treatments within the NHS setting.

Academic Consultant SEM Physicians will have an advocacy role in promoting research and education, facilitating public awareness and developing clinical and research links with multi-faculty universities.

In the musculoskeletal branch of the specialty, novel techniques and substances for the management of soft tissue and joint pain are being developed. Their safety and efficacy needs establishing before they can become widely available on the NHS. Optimal rehabilitation programmes as a first line treatment or in combination with other management strategies will also need evaluating.

With the increasing prevalence of disease relating to lack of physical activity and poor diet, research into how best to prevent and manage these conditions is vital. Establishing safe guidelines for exercise in those severely affected by chronic disease is particularly crucial.

## Specimen Job Plans

Four example Consultant SEM Physician job plans with different emphasis on the components of Musculoskeletal Injury, Exercise Medicine, Academia and Research have been listed.

Example weekly timetables have been also included, showing the various combinations of programmed activities that are possible.

**Please note the following plans and timetables are for illustration purposes only. The final job plan and weekly timetable will need to be tailored according to the needs of the local population and agreed by contract between the NHS employer and employee.**

### A) Consultant SEM Physician

(with equal emphasis on Musculoskeletal Injury & Exercise Medicine components)

Activity	Workload	Programmed Activities (PA's)
<b>Direct Clinical Care (DCC)</b>	2-3 injury/musculoskeletal clinics and associated administration (1.25 PA's per clinic)	2.5-3.75
	2-3 exercise medicine clinics and associated administration (1.25 PA's per clinic)	2.5-3.75
	1 exercise prescription session and associated administration (1.25 PA's per clinic)	1.25
<b>Total No. DCC PA's</b>		<b>7.5 on average</b>
<b>Supporting Professional Activities (SPA's)</b>	Undergraduate and postgraduate education, junior doctor and allied staff training, mentoring, appraisal, audit, governance, departmental management, service development, research, CPD and revalidation	<b>2.5 on average</b>
<b>Other NHS Responsibilities</b>	e.g. clinical tutor, lead consultant, clinical director, medical director	Local agreement with trust
<b>External Duties</b>	e.g. work for FSEM, deaneries, Royal Colleges, Department of Health, other specialist societies	Local agreement with trust

#### **Example of a Weekly Timetable for (A):**

Time	Monday	Tuesday	Wednesday	Thursday	Friday
<b>AM</b>	Sports Medicine Clinic	Junior Staff Training/Mentoring & Appraisal/ CPD/ Audit	Sports Medicine Clinic	Exercise Medicine Clinic	Supervised Exercise Prescription Session/ Workplace Wellness/ Musculoskeletal Procedures Session
<b>PM</b>	Exercise Medicine Clinic	(Rapid Access) Soft-tissue Injury Clinic	Clinic Administration	Undergraduate Teaching/ Research	Service Development/ Other NHS Responsibilities and External Duties (e.g. PCT/ NHS Trust/ RCP/ FSEM)
<b>Evening</b>				Other SEM Activities*	

\*Other SEM Activities- possible examples include team or event physician duties and private SEM clinics.

## B) Consultant SEM Physician

(with greater emphasis on Exercise Medicine component)

Activity	Workload	Programmed Activities (PA's)
<b>Direct Clinical Care (DCC)</b>	1-2 injury/musculoskeletal clinics and associated administration (1.25 PA's per clinic)	1.25-2.5
	3-4 exercise medicine clinics and associated administration (1.25 PA's per clinic)	3.75-5
	1 exercise prescription sessions and associated administration (1.25 PA's per clinic)	1.25
<b>Total No. DCC PA's</b>		<b>7.5 on average</b>
<b>Supporting Professional Activities (SPA's)</b>	Undergraduate and postgraduate education, junior doctor and allied staff training, mentoring, appraisal, audit, governance, departmental management, service development, research, CPD and revalidation	<b>2.5 on average</b>
<b>Other NHS Responsibilities</b>	e.g. clinical tutor, lead consultant, clinical director, medical director	Local agreement with trust
<b>External Duties</b>	e.g. work for FSEM, deaneries, Royal Colleges, Department of Health, other specialist societies	Local agreement with trust

### Example of a Weekly Timetable for (B):

Time	Monday	Tuesday	Wednesday	Thursday	Friday
<b>AM</b>	Exercise Medicine Clinic	Clinic Administration	General Musculoskeletal Medicine Clinic	Supervised Exercise Prescription Session/ Workplace Wellness (Alternate weeks)	Exercise Medicine Clinic
<b>PM</b>	Sports Medicine Clinic	Exercise Medicine Clinic	Junior Staff Training/Mentoring & Appraisal/ CPD/ Audit	Undergraduate Teaching/ Research	Service Development/ Other NHS Responsibilities and External Duties (e.g. PCT/ NHS Trust/ RCP/ FSEM)
<b>Evening</b>			Other SEM Activities*		

\*Other SEM Activities- possible examples include team or event physician duties and private SEM clinics.

### C) Consultant SEM Physician

(with greater emphasis on Musculoskeletal Injury component)

Activity	Workload	Programmed Activities (PA's)
<b>Direct Clinical Care (DCC)</b>	3-4 injury/musculoskeletal clinics and associated administration (1.25 PA's per clinic)	3.75-5
	1-2 exercise medicine clinics and associated administration (1.25 PA's per clinic)	1.25-2.5
	1 exercise prescription sessions and associated administration (1.25 PA's per clinic)	1.25
<b>Total No. DCC PA's</b>		<b>7.5 on average</b>
<b>Supporting Professional Activities (SPA's)</b>	Undergraduate and postgraduate education, junior doctor and allied staff training, mentoring, appraisal, audit, governance, departmental management, service development, research, CPD and revalidation	<b>2.5 on average</b>
<b>Other NHS Responsibilities</b>	e.g. clinical tutor, lead consultant, clinical director, medical director	Local agreement with trust
<b>External Duties</b>	e.g. work for FSEM, deaneries, Royal Colleges, Department of Health, other specialist societies	Local agreement with trust

#### Example of a Weekly Timetable for (C):

Time	Monday	Tuesday	Wednesday	Thursday	Friday
<b>AM</b>	Sports Medicine Clinic	Undergraduate Teaching/ Research	Junior Staff Training/Mentoring & Appraisal/ CPD/ Audit	Sports Medicine Clinic	General Musculoskeletal Medicine Clinic
<b>PM</b>	Clinic Administration	(Rapid Access) Soft-tissue Injury Clinic	Musculoskeletal Procedures Session	Exercise Medicine Clinic/ Supervised Exercise Prescription Session/ Workplace Wellness	Service Development/ Other NHS Responsibilities and External Duties (e.g. PCT/ NHS Trust/ RCP/ FSEM)
<b>Evening</b>	Other SEM Activities*				

\*Other SEM Activities- possible examples include team or event physician duties and private SEM clinics.

## D) Consultant SEM Physician

(with greater emphasis on Academic & Research component)

Activity	Workload	Programmed Activities (PA's)
<b>Direct Clinical Care (DCC)</b>	1-2 injury/musculoskeletal clinics and associated administration (1.25 PA's per clinic)	1.25-2.5
	1-2 exercise medicine clinics and associated administration (1.25 PA's per clinic)	1.25-2.5
	1 exercise prescription sessions and associated administration (1.25 PA's per clinic)	1.25
<b>Total No. DCC PA's</b>		<b>3.75 on average</b>
<b>Academic Sessions - University</b>	Research and teaching sessions	<b>5-6</b>
<b>Supporting Professional Activities (SPA's)</b>	Undergraduate and postgraduate education, junior doctor and allied staff training, mentoring, appraisal, audit, governance, departmental management, service development, research, CPD and revalidation	<b>1.5 on average</b>
<b>Other NHS Responsibilities</b>	e.g. clinical tutor, lead consultant, clinical director, medical director	Local agreement with trust
<b>External Duties</b>	e.g. work for FSEM, deaneries, Royal Colleges, Department of Health, other specialist societies	Local agreement with trust

### Example of a Weekly Timetable for (D):

Time	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Am</b>	Research	Exercise Medicine Clinic	Junior Staff Training/Mentoring & Appraisal/ CPD/ Audit	Research/ Clinic Administration	Sports Medicine Clinic/ Supervised Exercise Prescription Session/ Workplace Wellness
<b>Pm</b>	Sports Medicine Clinic	Research & Teaching	Service Development/ Other NHS Responsibilities and External Duties (e.g. PCT/ NHS Trust/ RCP/ FSEM)	Research & Teaching/ Combined Musculoskeletal Clinic (Alternate weeks)	Research & Teaching
<b>Evening</b>				Other SEM Activities*	

\*Other SEM Activities- possible examples include team or event physician duties and private SEM clinics.



## **Workforce Requirements**

Given that Sport & Exercise Medicine is a new speciality, statistics generated through census and audit with regard to need and demand have yet to be elucidated. This will form part of the ongoing work of new specialists. However, some mathematical modelling can help through consideration of relevant data:-

### **A) Musculoskeletal Injury:**

The Sport England Active People Survey (2007/8) found that 8.8 million people in England achieve 3x30mins(1.5hrs) of moderate intensity physical activity per week, translating to 13.2 million hours/week.<sup>17</sup> This represents only 21.3% of the population achieving this very modest target. The aim is to increase that number of people by 1 million by 2011.

In the non-sporting active population, the incidence of musculoskeletal injury is approximately 2/1000hrs of activity (1/1000 for Walking, 4/1000 for jogging). Given these figures, it is expected that one in six people engaged in the recommended amount of physical activity will be injured each year. This equates to 1.5 million musculoskeletal injuries per year.

In the sporting population, the risk and incidence of injury is exponentially higher. In 1990, there were estimated to be 9.8 million sports injuries per year requiring medical attention. This represents approximately one injury per person per year in the 16-45 year old age group.<sup>18</sup>

In total these two groups generate 11.3 million injuries per year. Given that there are 152 PCTs in England, this would yield an average of approximately 75,000 musculoskeletal injuries per year, per PCT, assuming even distribution. Notably these figures are for physical activity-related injuries only, the total burden of musculoskeletal injuries also includes accidents and work-related injuries. Many of these injuries will present to an A&E Dept, GP or Private Physiotherapist, but a significant proportion will require the attention of an experienced Sports Physician. Thus it would not be unreasonable to expect each PCT to have access to at least one Consultant SEM Physician to co-ordinate the work of treating such a large cohort of patients.

### **B) Exercise Medicine:**

When considering the situation regarding provision for exercise medicine, the need may be considerably higher.<sup>19</sup> The Darzi report has highlighted the need to transform the NHS into a 'Health Service' rather than an 'Illness Service'<sup>20</sup>, encompassing the principles of Preventative Medicine at its core, whilst the Foresight report has drawn attention to the unsustainable economic consequences of failing to address the nations physical inactivity.<sup>5</sup>

Physical inactivity is heavily implicated in the aetiology of the most common and costly conditions affecting Western nations, namely cardiovascular & respiratory disorders, diabetes, obesity, dementia, elderly frailty and falls, and even some cancers. Exercise Physicians are required at strategic level to co-ordinate campaigns to increase physical activity<sup>21</sup> (as highlighted by NICE guidelines for certain musculoskeletal conditions), but more importantly to engage patients firsthand at a clinical level and facilitate Health-enhancing Physical Activity (HEPA) through exercise testing and prescription. All PCTs and hospital trust will benefit from an Exercise Physician with these skills to co-ordinate physical activity programmes in low and high risk consumers.

### **C) Private Medicine:**

As a specialty, Sport & Exercise Medicine is in its infancy and the NHS is yet to reap the rewards of engagement. However, Sports Medicine has been thriving in the Private Sector for decades. Currently the Faculty recognises 200 Fellows who are working at Consultant-level positions, though these are not currently recognised by the GMC or NHS.<sup>1,2</sup> Some of these fellows are registered with the GMC as General Practitioners, Rheumatologists or Orthopaedic Surgeons, to name but a few specialties.

The Faculty survey of Sports Physician activity reports 72 doctors regularly billing in the private sector. The fact that the private sector is able to support such a large number of consultant sessions is indicative of the level of demand amongst the general public. Given that private medical insurance is purchased by a small minority (1 in 8)<sup>22</sup>, the assumption is that demand amongst NHS consumers would be proportionately higher.

**D) Related Specialities:**

Sport & Exercise Medicine has close ties to many specialties which currently manage the patients that might reasonably be expected to come under the care of a Sport & Exercise Physician. Table 4 below illustrates the number of GMC registered SEM Physicians within this context.<sup>23,24,25</sup>

**Table 4: Consultants & General Practitioners on the GMC Register (in context described above)**

General Practice (2009)	57,715
Orthopaedics (2009)	3,128
General(Elderly) Medicine (2007)	1,129
Cardiology (2007)	874
Emergency Medicine(A&E) (2008)	740
Rheumatology (2007)	572
Rehabilitation (2007)	145
Sport & Exercise Medicine (2009)	7
Total number of Doctors with GMC registration (2009)	231,297

**E) Trainees & Article 14 applications:**

There are currently 25 training posts with National Training Numbers in SEM active in the UK, with potential for an additional 25 across all deaneries. Up to 150 Faculty Fellows may eventually obtain specialist recognition from PMETB via the Article 14 route, though many current Sports Physicians in their 40's and 50's would not anticipate serving a 30-40 year career in the NHS.

A cautious interpretation of these numbers could see 100 specialists gaining recognition in upcoming years, whilst a more optimistic figure could reach 200.

**F) Academic SEM- Research and Education:**

There is also a need to produce academic SEM Consultants who can make high quality contributions to teaching and improving the SEM research base. In order to carry out these functions, they will need to establish close links with research active multi-faculty universities and associated teaching hospitals, for example within the setting of an Academic Health Science Centre (AHSC).<sup>26</sup>

**Conclusion:**

The above illustrated cases demonstrate that there is genuine demand in the UK for Consultant SEM Physicians. The burden of physical-activity related musculoskeletal injuries is considerable, and will rise if the laudable aim of increasing health-enhancing physical activity (HEPA) is achieved.

As HEPA increasingly becomes a part of DH strategy, exercise specialists with the ability to safely engage moderate and high-risk patients in HEPA will be needed for implementation at grass roots level. With the urgency to create a more physically active nation, SEM Specialists will also be required within PCTs to promote HEPA in the low-risk majority.

There are 152 PCTs in England with similar organisational arrangements existing proportionately in the devolved nations. An aim of one Consultant SEM Physician in every PCT, whilst creating a critical mass of specialists able to begin the work, would still only represent one Consultant SEM Physician for every 260,000 people, which is the average population of a PCT.

Ongoing audit of the clinical workload of practicing SEM Physicians will enable accurate workforce planning, though in the short term an estimated range of **150-300 Consultant SEM Physicians in England alone** (1 or 2 per PCT) represents a realistic starting point. Given the burden of musculoskeletal injury and the expanding role of Exercise Medicine, these consultants would expect to experience a significant workload.

The population of the UK is currently just under 61 million people.<sup>27</sup> If we consider the whole of the UK, then a proportionate increase in this number would (according to population) yield a requirement in the range of **180-360 Consultant SEM Physicians within the UK**. Given the current number of SEM trainees, it may take many years for this number of consultants to be trained.

It is worth noting that in the year 2000, the Australasian College of Sports Physicians (ACSP) estimated that their population of 21 million people would require a workforce of at least 200 senior Sports Physicians. If we extrapolated those figures to the UK for the sake of comparison, the figures would be **closer to 600 Consultant SEM Physicians within the UK**.

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