



ASR Beds, Services and Capacity Working Group

REPORT of the CLINICAL MODEL SUB

GROUP for RHEUMATOLOGY

December 2005

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Rheumatology Clinical Models Sub-Group Report October 2005

1. Introduction

The Acute Services Implementation Programme Board established a process to finalise the final disposition and configuration of a range of Specialties. The Programme Board commissioned a working group on Beds, Activity and Capacity, which is chaired jointly by NHSGG Medical Director and the Director of Planning. In order to progress this work a number of Clinical Model Sub-groups were established.

1.1 ASR Clinical Model Subgroups' Remit

The remit and purpose of the subgroups were wholly strategic and focused on the future pattern of inpatient care and the consequential changes of a new pattern for other, linked core services including primary and community care. The subgroups were tasked with identifying preferred care pathways and models for 2010 and beyond, along with the associated bed requirements. Models of care were used as a vehicle for articulating the proposed patterns of service delivery. They also helped to:

- Estimate ALOS/Bed-days and consequent bed requirements
- Identify the use of key support services
- Describe the key inter-specialty co-locations and relationships

1.2 Planning Assumptions

The main planning assumptions underpinning this paper are as follows:

- The two major Accident & Emergency sites will be at Glasgow Royal Infirmary and the Southern General Hospital, with approximately 120,000 and 132,000 attendances respectively per annum. These will be the major sites for trauma, acute receiving, acute medicine and medical specialties.
(ref. PK, Planning Team Communication 24/2/05 referring to Health Board meeting of Jan 2002)
- Gartnavel General Hospital will be part of an acute receiving site for G P referred patients, which are expected to be in the region of 5,000 patients per annum. The original planning assumption was that day case and Out-patients rheumatology provision would continue on the GGH site and that current inpatient beds would transfer to the new build hospital on the SGH site.
(ref. PK, Planning Team Communication 24/2/05 referring to Health Board meeting of Jan 2002)
- The Rheumatologists have agreed a two-site model for the service and that this should co-located with the major medical and surgical receiving.
(ref. meetings of the Clinical Model sub-group for Rheumatology 2004-2005)

The proposals from the CMSG group include a move away from inpatient based services delivery to a more integrated day care facility with intensive input from a mix of health care professionals.

1.3 Demographics/Cross Boundary Flow

It was noted that there is a high proportion of deprived patients within the Glasgow catchment area and also a significant proportion of elderly patients. Demographic and geographic factors (West of Scotland tertiary referrals and referrals from the Western Isles) present a number of challenges for access and service provision.

Community and primary care should also be included within the model with good I.T and communications between Rheumatology and these bodies.

2 Current Service Profile

2.1 Activity

Table 1. Service 2002/03

Rheumatology	Sites					
Service	GRI	Stobhill	West	Victoria	Southern	Total
Elective I.P.	417	38	228	41	83	807
Emergency I.P.	463	140	261	124	329	1,317
Day Case	564	27	9	101	58	777
O.P. Attendances	1,266	882	1,065	627		3,840
D.C Rate	57%	42%	4%	71%	41%	49%
Conversion Rate	0	0	0	0	0	0

Source of data SMRI: GGNHS

Table 2. Service 2003/04

Rheumatology	Sites					
Service	GRI	Stobhill	West	Victoria	Southern	Total
Elective I.P.	460	57	228	28	77	850
Emergency I.P.	393	190	262	134	299	1,278
Day Case	917	47	17	111	116	1,208
O.P. Attendances	1,180	462	1,060	600		3,302
D.C Rate	67%	44%	7%	80%	60%	59%
Conversion Rate	0	0	0	0	0	0

Source of data SMRI: GGNHS

2.2 Bed Days

Table 3 Bed days 2002/03

Rheumatology	Sites					
Service	GRI	Stobhill	West	Victoria	Southern	Total
Elective I.P.	3,660	868	3,074	311	1,741	9,654
Emergency I.P.	4,556	1,487	3,374	470	3,984	13,871
Day Case	564	27	9	101	58	759

Source of data SMRI: GGNHS

Table 4 Bed days 2003/04

Rheumatology Service	Sites					
	GRI	Stobhill	West	Victoria	Southern	Total
Elective I.P.	3,480	975	2,575	174	1,568	8,772
Emergency I.P.	4,548	1,889	3,035	596	3,606	13,674
Day Case	917	47	17	111	116	1,208

Source of data SMRI: GGNHS

2.3 Cross Boundary Flow

Current cross boundary flow has remained constant over a number of years accounting for 34% of Elective activity and 17% of Non-elective.

Table 5 Cross Boundary Flow 2002/03 Activity & Bed days

Admission Type	Elective	Non Elective	Day case
Total Activity	807	1,317	759
XBF Activity	278	225	244
% Of Activity	34%	17%	32%
Total Bed days	9,343	13,401	759
XBF Bed days	2,224	2,215	244
% Of Bed Days	24%	17%	32%

Source of data SMRI: GGNHS

3 Specialised services

As highlighted above in demographics/cross boundary flow section there is a high proportion of deprived patients within the Glasgow catchment area and also a significant proportion of elderly patients. Demographic and geographic factors (West of Scotland tertiary referrals and referrals from the Western Isles) present a number of challenges for access and service provision.

4 Recent Service Changes and Developments

- Centralisation / reconfiguration / consolidation
- Redesign
- Pre-assessment
- Switch from IP to day case
- Day wards
- GORU
- Use of DART/IRIS

5 Performance and Benchmarking

Detailed performance analysis is given at appendix 1.

Glasgow Royal Infirmary is the only site with separately identified Rheumatology beds. The Rheumatology beds in the Western Infirmary & South Glasgow hospitals are included part of General Medicine bed complement. It is therefore, not possible to separately identify this data for the Peer group comparison.

The group agreed to use the SMR 1 data to extract data using the primary & secondary procedure across three specialties 1) Rheumatology. 2) General Medicine, 3) Geriatric Assessment, this will enable us to have performance comparisons across the city but not with the peer group.

Emergency ALOS across Glasgow sites

PEER	NGD	PEER	SGD
	10.90		8.79

Elective ALOS across Glasgow sites

PEER	NGD	PEER	SGD
	11.13		14.04

Day Case Rate across Glasgow sites

PEER	NGD	PEER	SGD
	47%		56%

Occupancy and throughput

It is not possible to extract data to produce these.

6 Waiting Time Targets Inpatients & Outpatients

6.1 Inpatient & Day Case waiting time targets

By December 2005 patients waiting for inpatient or day case treatment will wait no longer than 6 months.

By December 2007 patients waiting for inpatient or day case treatment will wait no longer than 3 months.

6.2 Outpatient waiting time targets

By December 2005 patients waiting for a first outpatient appointment should wait no longer than 26 weeks.

By December 2007 patients waiting for a first outpatient appointment should wait no longer than 18 weeks.

7 Care Pathways

The Rheumatology CMSG was set up as a sub group of the Orthopaedic Musculoskeletal CMSG. During the process of analysing the data provided by CHKS, the Rheumatology Clinicians raised concern in relation to the low level of activity recorded for their specialty.

The group agreed to use SMR1 data provided by GGNHS. Due to differing bed configuration across the sites i.e. GRI has dedicated Rheumatology beds where as WIG and SGH are included as part of the General Medicine bed complement, it was agreed that the SMR1 data should be extracted by the following criteria:

- Primary and secondary diagnosis over three specialties of Rheumatology, General Medicine and Geriatric Assessment.

7.1 Top Conditions/Diagnosis

The SMR 1 data for Inpatients has been grouped below by condition/diagnosis.

Table 6 Top conditions (elective and non-elective)

CONDITION / DIAGNOSIS	Day Case	Elective Inpatients			Non-Elective Inpatients		
		Disc	B days	ALOS	Disc	B days	ALOS
Rheumatoid Arthritis	690	380	4,192	11.03	523	6,112	11.69
Pseudogout	0	3	40	13.33	6	55	9.17
Osteoarthritis	107	143	2,271	15.88	302	3,124	10.34
Other Connective Disease	13	47	192	4.09	17	226	13.29
Polymyaglia Rheumatica	7	16	151	9.44	36	288	8.00
Ankylosing Spondylitis	6	13	86	6.62	7	74	10.57
Systematic Lupus Erythaamatosi	65	44	348	7.91	64	518	8.09
Scleroderma	182	110	541	4.92	35	401	11.46
Polymyositis\Dermatomyositis	60	33	210	6.36	16	111	6.94
Septic Arthritis	3	5	62	12.40	64	1,080	16.88
Gout	14	25	349	13.96	129	832	6.45
Vasculitis	28	10	170	17.00	55	691	12.56
Psoriatic Arthritis	33	21	160	7.62	24	162	6.75
Total	1,208	850	8,772	10.32	1,278	13,674	10.70

Source of data SMR1: GGNHS

The group have agreed that they would develop future models of care around processes rather than condition/diagnosis.

7.2 Care Pathways – Process

Table 7 Care pathways

CARE PATHWAYS	PROCESS
Model 1	Day case
Model 2	Inpatient Elective
Model 3	Inpatient Emergency

Care Pathways are attached at appendix 2,3 & 4.

The focus of developing the pathways was to understand the steps in the each process and identify the activity waiting time associated with each step and where possible improve the patient journey with changes in practice.

The day case model for Rheumatology is illustrated in diagrammatic form with the key assumptions behind the model are attached at appendix 2.

The elective inpatient care model for Rheumatology is illustrated in diagrammatic form and with the key assumptions behind the model are attached at appendix 3

The non-elective care model for Rheumatology is illustrated in diagrammatic form with the key assumptions behind the model attached at appendix 4.

8 Proposed site configuration

Table 8 Proposed Site Configuration

Type of Facility	SITE			SITE		
	GRI			SGH		
	Beds	% Act	Volume	Beds	% Act	Volume
I.P. and 5 day beds	51	75	15900	17	25	5381

It is considered that a split of 60:40 between inpatient and 5 day beds would be appropriate on each site. Daycase beds would also be required - these are to be not conventional beds but 'plinths' instead (e.g. such as clinic plinths/adjustable benches for examination and resus) along with reclining chairs

8.1 Ancillary Infrastructure required to achieve Inpatient Bed Model

- 5 day ward / 7 day ward
- 23 hour beds
- Community beds
- Community based services
- Rehabilitation beds

A Rheumatology Planning Group has now been established, (Dec 2005), under the chairmanship of Dr Hilary Capell. This group will develop in detail the future care models for rheumatology including Primary Care.

8.2 Reasons for Site Configuration Proposals

8.2.1 Centralisation

As highlighted above the provision of dedicated Rheumatology beds varies from site to site through GGHB. The lack of dedicated Rheumatology beds and/or including them with general medical beds on some sites mean that patients may be boarded and scattered throughout the site which does not encourage a sense of a local unit.

The centralisation of resources will facilitate the creation of an multi-disciplinary team with its own identity. Staff would have common training and clinical governance issues which can often be of benefit in managing these chronic disabling conditions. Strict ring fencing may decrease the flexibility of a medical unit but the importance of a core central unit for rheumatology is essential.

8.3 Changing Patterns of Care

8.3.1 Inpatient

It is recognised that with changing patterns of in-patient workload that a cohort of patients with inflammatory arthritides and connective tissue diseases might best be managed in a day case environment. Hence a purpose designed facility close to in-patient facilities should be considered.

8.3.2 Day Care

Special designated facilities for day care for Rheumatology patients are essential. It is proposed that this should be ring fenced and not linked to short stay medical surgical beds otherwise this may lead to competition and lack of bed availability for the Rheumatology patients.

The Rheumatology service requires regular day case attendance for intravenous cytotoxic and biologic therapy. An important part of these attendances is the detailed multi-disciplinary assessment of the patients with chronic disabling disease. This would also prevent hospital admission and improve the appropriate use of in-patient beds.

8.3.3 Out-patients

At present out-patient facilities within Ambulatory Care and Diagnostic Centres (ACADs) are being planned. No specific dedicated provision has been made for Rheumatology in the Victoria ACAD and it is felt by the Rheumatologists on the Sub-group that spreading the outpatients on to more than their base site would provide inherent difficulties in what is mainly not only a Consultant led but a Consultant provided service.

The strength of having base sites which provide in-patient beds, day care facilities and out-patient access were emphasised in terms of quality of service provision, management of rotas, internal cover, training, supervision and efficient use of Allied Health Professionals.

The impact of European Working Directive, junior doctor hours and Agenda for Change there has been a growth in the extended role practitioner in Rheumatology as

in other specialties and in order to run various services, this increase is thought likely to continue.

8.3.3.1 Out-patient and Day Care Facilities

As Rheumatology is primarily an out-patient based specialty, a multi-disciplinary approach, ergonomically sensible design of out-patients and day care space is required with accommodation required to enable confidential patient discussions to be carried out in private space rather than traditional day care open-plan surroundings.

Adequate room for patients, medical staff and students is needed. Details such as standard adjustable couches, telephones, computer terminals and including access to CR/DR images would be expected. Flexibility is required to run either cross-specialty clinics with Orthopaedic, Dermatology, Paediatrics or for co-located, linked clinics to run concurrently with easy patient access to both for cross-speciality referral. Such set-up have been established with success in other parts of the U.K.

Other out-patient type facilities – hydrotherapy pool access, treatment area and gymnasium.

There is an increasing need for day care and short stay facilities for the growing administration of I.V. Cyclophosphamide, Immunoglobulins and biologic therapy agents.

8.3.4 Outreach Service

Communication with primary care is essential and can result in G.P's with an interest in musculoskeletal disease taking on an extended role themselves in both Rheumatology and Orthopaedic clinical problems

8.4 Critical Co-locations / Clinical Linkages

Those services that are required for Acute General Medicine and surgery plus the physio/rehab pool and gym access etc. Refer to rehab paper for the facilities.

The general aim is for dedicated protected fully funded and staffed central hubs for treating in-patients, short stay and day cases which will inherently increase staff training opportunities. If the patient is an outlier, then less satisfactory multi-disciplinary care can result.

8.5 Summary of Requirements

- A strong central base for each unit acting as a focus for the multi-disciplinary team. This would offer opportunities for inter professional training and development of a generic health professional that can multi-task to a high quality rather than be limited to traditional roles.
- There have been and will continue to be developments of disease modifying and biologic therapies for patients with these active disabling inflammatory arthritides. This requires specialist trained nursing support to optimise delivery of care, hence support for specialist professional nursing staff including facility for patient counselling and liaising with primary care.

- AHP support. With the increasing AHP role, some will obviously take on a management responsibility to enable co-ordination of service provision and further development of the AHP role. This will not only increase the efficiency of the medical staff to see more patients, but also increasing the motivation and standing of the AHP.
- Rheumatology should be co-located with General Medicine and not separated out as a ‘stand alone’ specialty e.g. as is the case for Neurology.
- If GGHB implements the move to 2 acute receiving centres at the GRI and SGH respectively it would be sensible to co-locate Rheumatology inpatient beds on these 2 sites.
- Adequate inpatient facilities, fit for purpose, will be required on both sites with the number of inpatient beds calculated on the basis of a needs assessment and the GGHB bed planning model.
- It was recognised that ACADs at Stobhill and the Victoria sites have planned to provide outpatient services. Adequate infrastructure support (e.g. case-note availability,) is essential for such multi-site working. With respect to day-care provision out-with the inpatient sites: this demands a medical availability on the site all the time. That commits medical staff (predominantly consultants) to either being there when there are no clinics, having clinics running 9 to 5 five days a week, or not operating day-care when no clinics are on. This has limitations and requires further input and clarification.
- Consultant Rheumatologists will have to move towards Team working to facilitate the new arrangements and to allow for MMC, EWTD, ‘Hospital at Night’ and SpR training etc.
- It will be prudent to start planning for these changes now in order to present an agreed proposal from the Rheumatologists to GGHB rather than to have a decision made unilaterally by GGHB without reference to the Consultant body.
- Any developments currently planned for Rheumatology services on the existing sites e.g. staffing etc. should not be frozen pending implementation of the acute services review.

8.6 Clinical Support Service Requirements

8.6.1 Laboratory and Imaging Support

Computed radiography and digital radiography access via a PACS (Picture Archiving Communication System) would be expected to be a standard service by the time the new builds are up and running. By that stage there will be an increase in the

requirement for MRI for example in areas related to the infected joints (reference to BSR guidelines to be published soon).

Efficient I.T. access to Rheumatology and Biochemistry and interfacing with the electronic patient record would obviously ease patient throughput.

8.7 Staffing

The day care unit requires specialist nursing expertise and training in administering cytotoxic and biologic therapies hence if the day care unit is based with/alongside the dedicated in-patients beds this would have natural benefits. This again would lead to unit identity and facilitate training in the Allied Health Professionals and medical staff.

8.7.1 Academic

A University fellow or honorary lecturer post with responsibilities on central/hub sites would be recommended. The centralisation will also have an impact on increase in the critical mass of specialist research material.

8.7.2 Consultant Positions

Careful review of Consultant responsibilities with respect to general medical on-call and general responsibilities should be included in any assessment for need for increasing Consultant Rheumatology posts. These responsibilities will obviously have changed by the time the new build is in action.

8.7.3 Consultant Staffing

The national average is approximately 1 Consultant per 170,000 in the U.K. The recommendation of BSR and SSR is 1 Consultant per 80,000 population. Careful attention is required to increase the number of Rheumatology Consultant staff with due consideration to availability of Consultant time in relation to other commitments such as general medicine responsibilities including general receiving. Increases in general emergency admissions with the new configurations of the two large acute sites may detract from the time availability for medical care of Rheumatology patients unless it is not only the beds that are protected but also Consultant time. An additional factor is that some of the present posts are part academic or not full-time and retirements are expected.

8.7.4 Specialist Registrar Staffing and Training

There are likely to be improved training opportunities including seeing a broad range of pathologies in Rheumatology patients if services are concentrated on fewer sites. Internal cover for SpR's is easier to allow for study leave and office provision with secretarial support can be centralised. Ring fenced Rheumatology beds within the Rheumatology Unit can lead to improvement in multi-disciplinary care, education and training and in order to develop this specialist knowledge and expertise required for the Rheumatology patient.

Dedicated specialist nursing and AHP's are at present delegated to a number of tasks (e.g. joint injections, I.V. and I.M. drug administration) hence freeing up SpR staff and, improving education training opportunities and hence attracting more SpR's and AHP's to the specialty.

Centralisation also enables regular attendance at essential weekly multi-disciplinary meetings and inter-disciplinary education meetings. These are an important part of the Rheumatology service and a heavy Consultant and SpR workload coupled with service spread over multiple sites will inevitably tend to hamper this important area.

8.7.5 Allied Health Professionals

The provision of dedicated health professional support from nursing, physiotherapy occupational therapy, podiatry and orthotics is essential in the management of patients with long-term debilitating disease. AHP's themselves are keen to extend their roles and the extended scope practitioners on some sites to date have proven to provide valuable assistance to hard-pressed medical staff. Spreading the AHP's over multiple sites would dilute their impact and have an implication on Consultants advice and supervision in this demanding service.

8.7.6 Staffing and Training

The shared care approach with nursing, physiotherapy and OT combining to increase skill-mix in helping to fill the gaps in service that often produce challenge or provide a challenge in continuity of service.

9 Additional Comments

9.1 Paediatric Rheumatology

The importance of dedicated paediatric Rheumatology service was emphasised. In Glasgow this is currently based at Royal Hospital for Sick Children but has regular academic and clinical contact with the adult Rheumatology service.

9.2 Academic

Research in, inflammatory arthropathies (such as rheumatoid arthritis), psoriasis, spondylo-arthropathies and connective tissue diseases within the North Glasgow Division with academic input at this hub is considered essential and a University funded lecturer post with clinical academic commitment to another hub should also be an important consideration.

9.3 Management Changes

Administrative changes at the moment within the Clinical Directorate and senior management posts within Greater Glasgow will have an impact on delivery of this service but as the posts will have pan Glasgow responsibility hopefully this should be seen as positive in providing a uniform, seamless service both in Rheumatology and in its essential clinical relations.

Managing the Rheumatology service and gauging service requirements and planning in order to base resources on actual known requirements is also eased by centralisation of patient workload data and management

9.4 Important standard areas of support:

- Accommodation.
- Secretarial service. Having an expert Rheumatology secretarial service providing a continuity of care dealing with contact and communication from Hospital to G.P. and including as part of a multi-disciplinary team reduces the delays in despatching letters to G.P.s and avoids G.P.s and patients chasing results which again impacts on the efficiency on the Rheumatology service.
- I.T. Laboratory, pathological at path and Radiology (digital high quality images access) expected as standard service.
- Medical Records and the development of the electronic patient record.
- Access to other specialties such as Orthopaedics, Dermatology and Immunology and also access to the gamut of medical opinions required within this patient sub-group, which ranges from Cardiology, GIT, Neurology through to Respiratory and Oncology.

9.5 I.T.

There should be an increase in amount of I.T. support required as long-term cost reductions should be realised by implementing unified care plan across the city with provision of data and results for G.P's.

Increased access to Self Help Groups such as National Ankylosing Spondylitis Society, NRAS, ARC, Arthritis Care and Lupus Group should be available within clinic and ward environment via computer connections.

10 APPENDICES

1. Current Performance & Benchmarking
2. Care Pathway Day Case
3. Care Pathway Inpatient Elective
4. Care Pathway Emergency
5. Bed Numbers Model

Appendix 1

10.1 Current Performance and Benchmarking – Rheumatology

April 2002 – March 2003				
SMR 1 Discharges excluding Children Aged <13				
Performance Indicator	North	South	Glasgow	Peer
Day Case	600	177	777	
Elective Inpatients	683	124	807	
Non-Elective Inpatients	864	453	1,317	
<i>Total Inpatient Activity</i>	2,147	754	2,901	
New Outpatients	3,213	627	3,840	
Return Outpatients	21,098	5,845	26,943	
<i>Total Outpatients</i>	24,311	6,472	30,783	
<i>Occupied Beds Days</i>				
Elective Inpatients	7,602	1,741	9,343	
Non Elective Inpatients	9,417	3,984	13,401	
<i>Total O.B.D's</i>	17,019	5,725	22,744	
Average Length of Stay				
Elective Inpatients	11.13	14.04	12.58	
Non-Elective Inpatients	10.90	8.79	9.85	
<i>Combined ALOS</i>	11.01	11.41	11.21	
<i>Other Performance</i>				
Day Case Rates	46%	41%	50%	
Occupancy				
Throughput				
Turnover Interval				
Outpatient DNA Rate				

Conversion Rates				
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10.2 Care Pathways

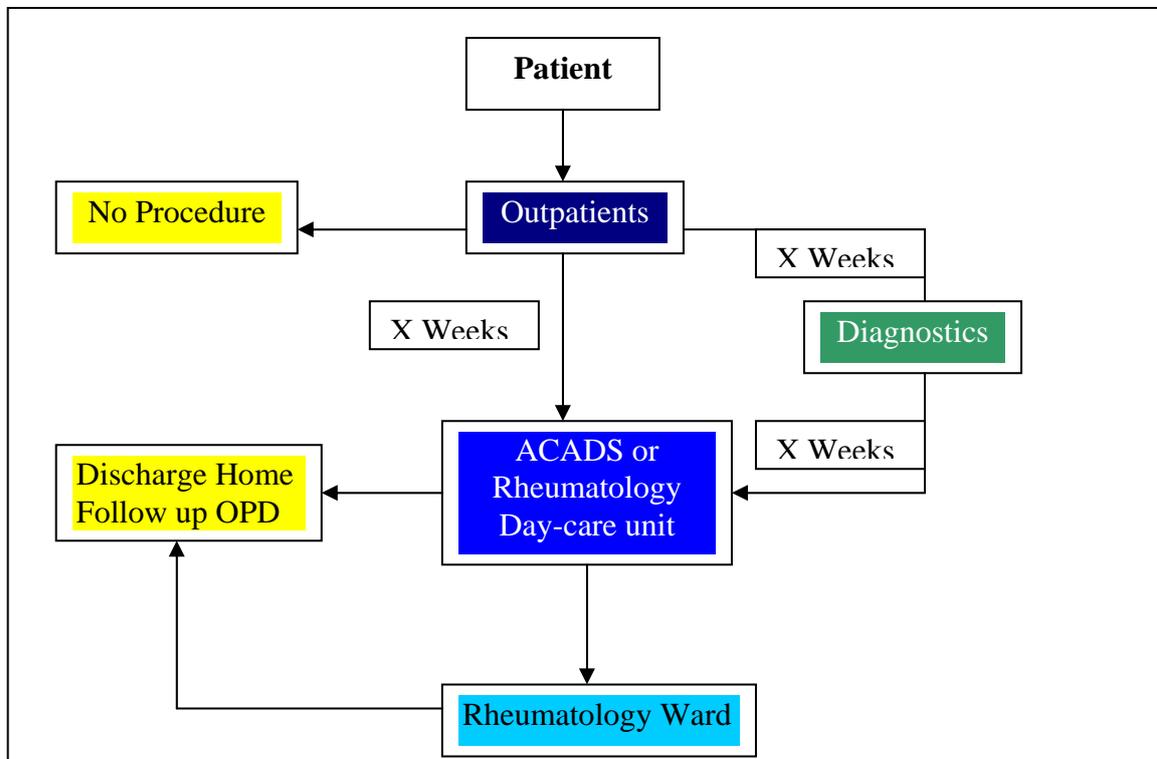
The Rheumatology core group have agreed to develop models of care around processes rather than diagnostic groups:

- Day-Case Procedures
 - Inpatient Electives
 - Inpatient Emergencies

Examples of potential models of care for Rheumatology are set out below.

10.3 Day Case Procedures

A potential model of care for Rheumatology day-case procedures is illustrated in the diagram below.



Potential Model of Care – Day Case Procedures

The key assumptions behind this model of care should be noted in the table below:

Model of Care Assumptions – Day Case Procedures

Stage	Duration	Notes
Outpatients	X weeks	
Diagnostics	X weeks	
ACAD/Rheumatology Day Care Unit	X hours	

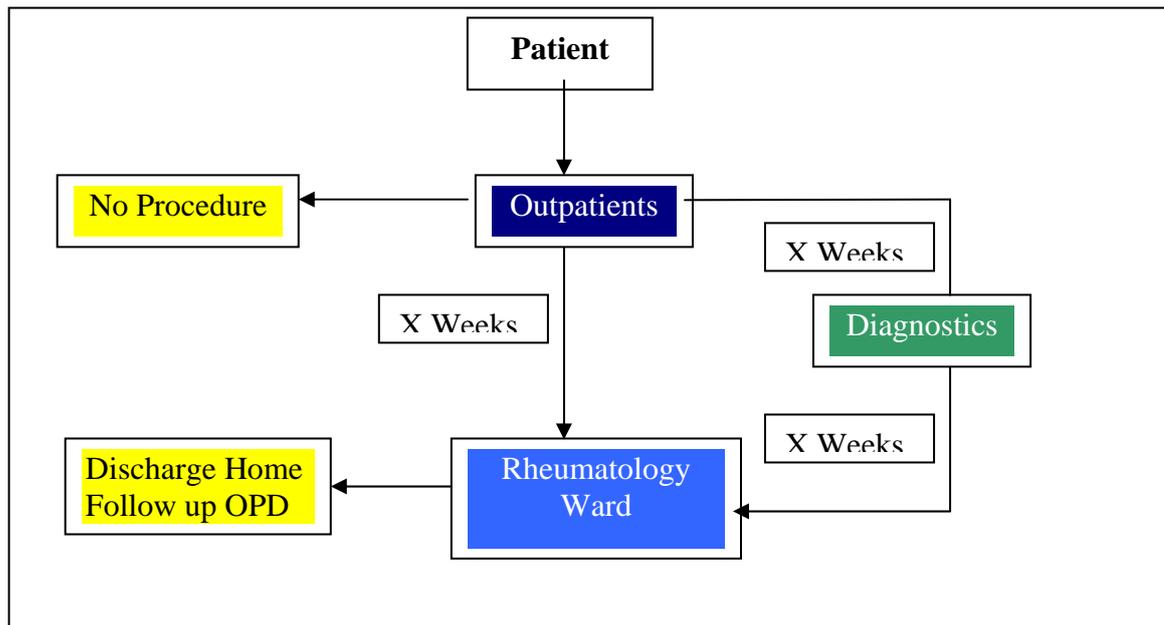
Stage	Duration	Notes
Rheumatology Ward	X days	

Appendix 3

10.4 Inpatient Electives

A potential model of care for Rheumatology inpatient electives is illustrated in the following diagram:

Potential Model of Care – Inpatient Electives



The key assumptions behind this model of care, and forecast timescales, should be noted in the table below.

Model of Care Assumptions – Inpatient Electives

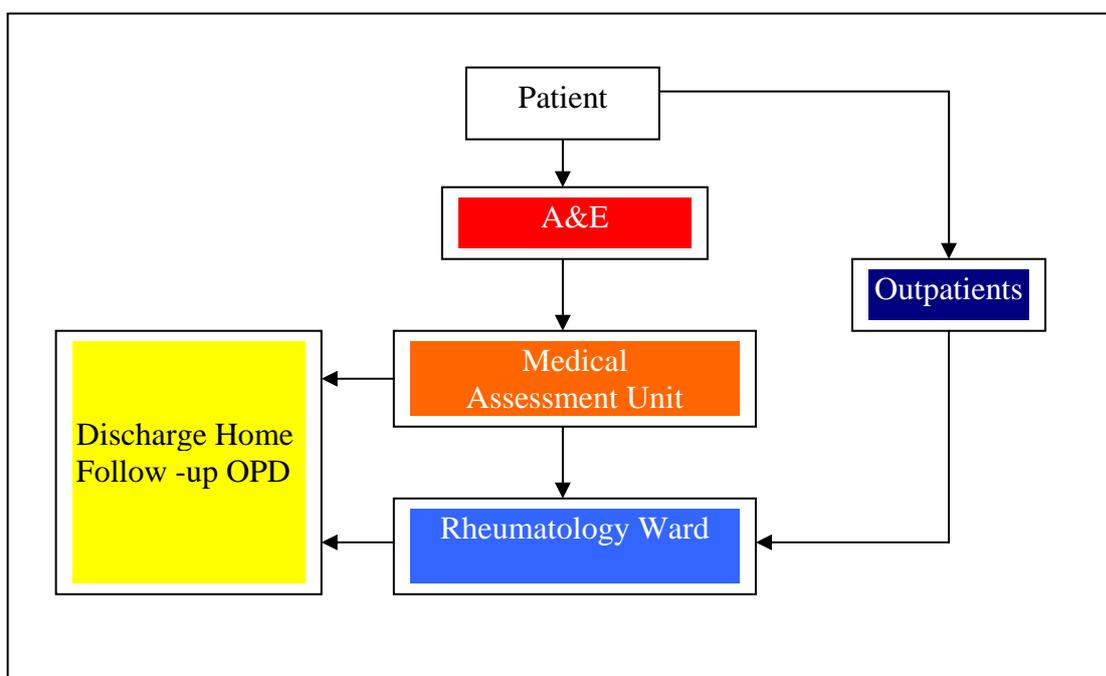
Stage	Duration	Notes
Outpatients	X weeks	
Diagnostics	X weeks	
Rheumatology Ward	X days	

10.5 Inpatient Emergencies

A potential model for Rheumatology inpatient emergencies is illustrated in the following diagram:

Potential Model of Care – Inpatient Emergencies

The key assumptions behind this model of care, and forecast timescales, should be noted in the table below:



The key assumptions behind this model of care, and forecast timescales, should be noted in the table below.

Model of Care Assumptions – Inpatient Emergencies

Stage	Duration	Notes
A & E	X hours	
Medical Assessment Unit	X hours	
Rheumatology Ward	X days	

10.6 Bed Numbers Model

Reviewed by and agreed with NHSGG (KB)

Population Derived Approach

①	Glasgow	866,370		
②	Argyll & Clyde	417010	}	
③	Ayrshire & Arran	367140	}	1,337,590
④	Lancashire	553440	}	

Same service provided by their health board
Estimate corrected population of referrals

03/04 GRI rheumatology inpatients
referrals form

1042	glasgow	1
490	referrals from other	2,3,4.

therefore glasgow $\frac{1043}{866370} = 1.2$ referrals per 1000 of population

assuming same rate in other Health Boards

Actual (HC data 03/04)

1.2	x	417.01	=	500	207
1.2	x	367.14	=	441	140
1.2	x	553.44	=	664	110

corrected population

2	207/500	x	417010	=	172642
3	140/440	x	367140	=	116817
4	110/664	x	553440	=	91684
					<u>381144</u> ⑤

⇒	①	866,370	
	②	<u>381144</u>	corrected population
		<u>1,247,514</u>	

Royal College of Rheumatologists say 12 beds per 250,000 population

⇒	60 beds total	42	Glasgow
			Other
		18	HB

Occupied Bed Days Derived approach

SMR1 data
Aim ALOS 10 days

	Activity	Bed days	ALOS	Corrected bed days		
GRI	853	8028	9.41	8531	}	
Stobhill	247	2864	11.6	2469	}	15900
WIG	490	5610	11.45	4900	}	
Vic	162	770	4.75*	1621	}	
SGH	376	5174	13.76	3760	}	5381

** too high due to 4.75*

⇒ 2 site model (Total Elective + non-elective inpatient beds)
@85%occupancy

	North	South
	15900 beddays	5381
=	51.2 beds	17.3

68 beds total

59	Glasgow
	Other
9	HB

Number of Consultants per population

Ave/UK	1	per	170000
BSR, SSR	1	per	80000
Currently	10 WTE	for	1247513
i.e.	1	per	124751

2 Units with university input to both