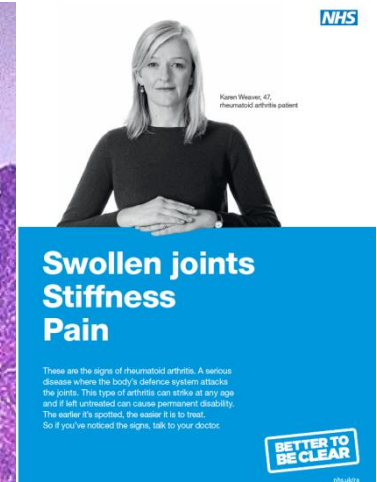
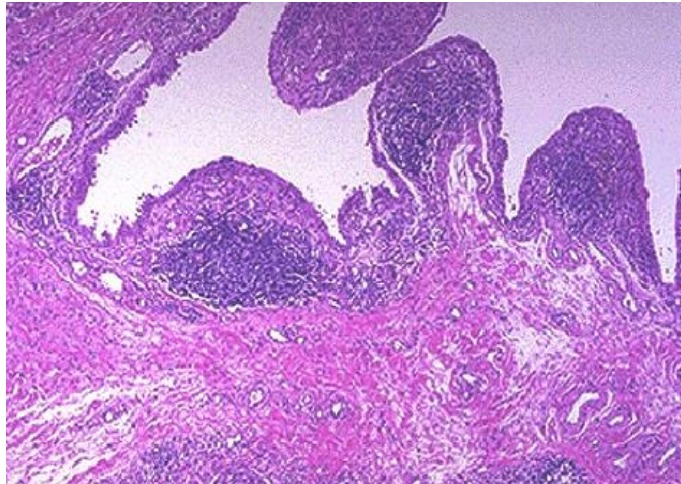


Rheumatoid arthritis: predicting the diagnosis & preventing damage



Francesca Barone

Senior lecturer

University of Birmingham & Sandwell and West Birmingham Hospitals NHS Trust



3/31/2016



3/31/2016

Rheumatoid arthritis



Common:

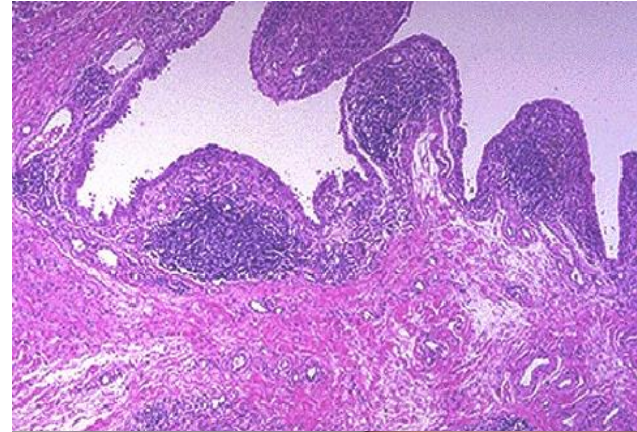
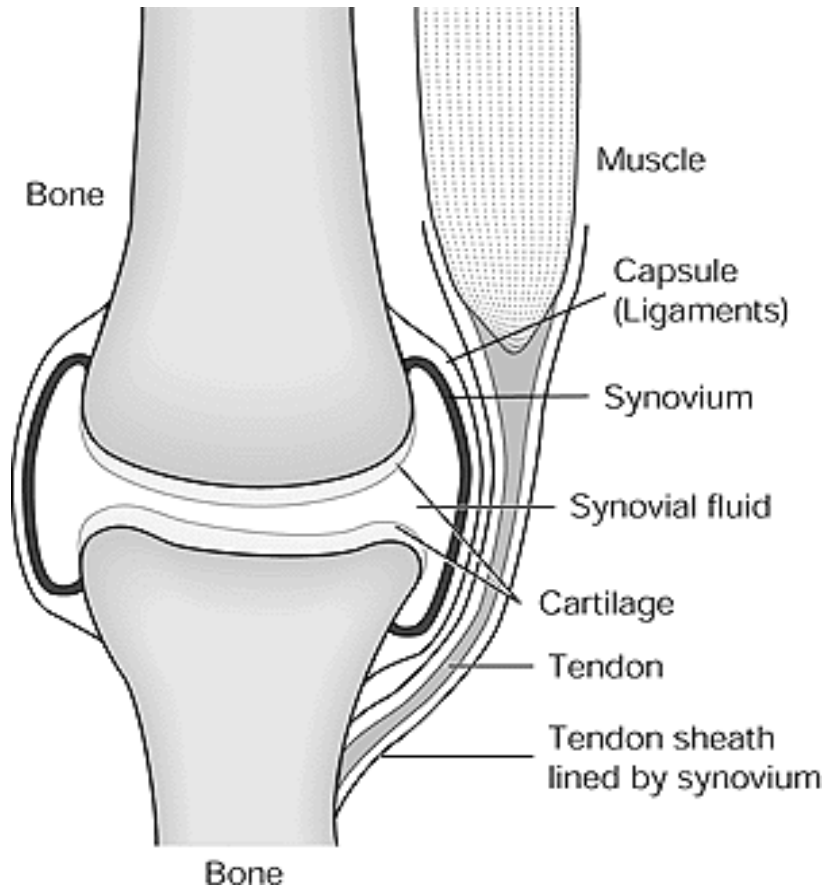
580,000 adults have RA in England
28,000 new cases per year

Costly:

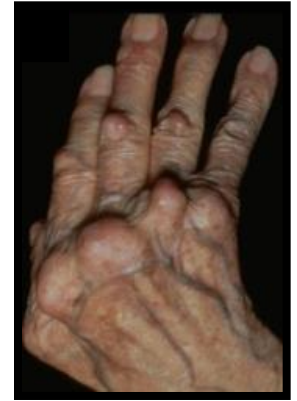
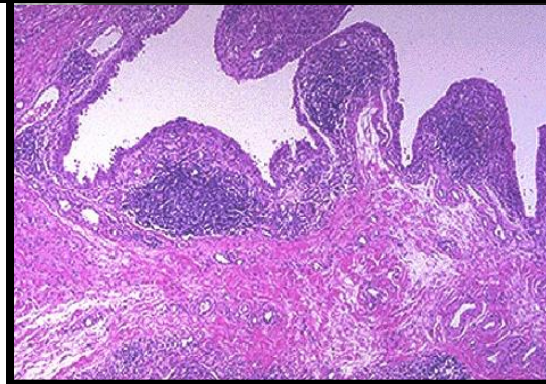
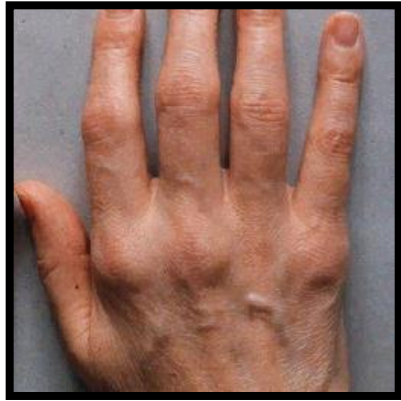
Annual NHS costs: £560 million

Annual cost to the economy: £1.8 billion

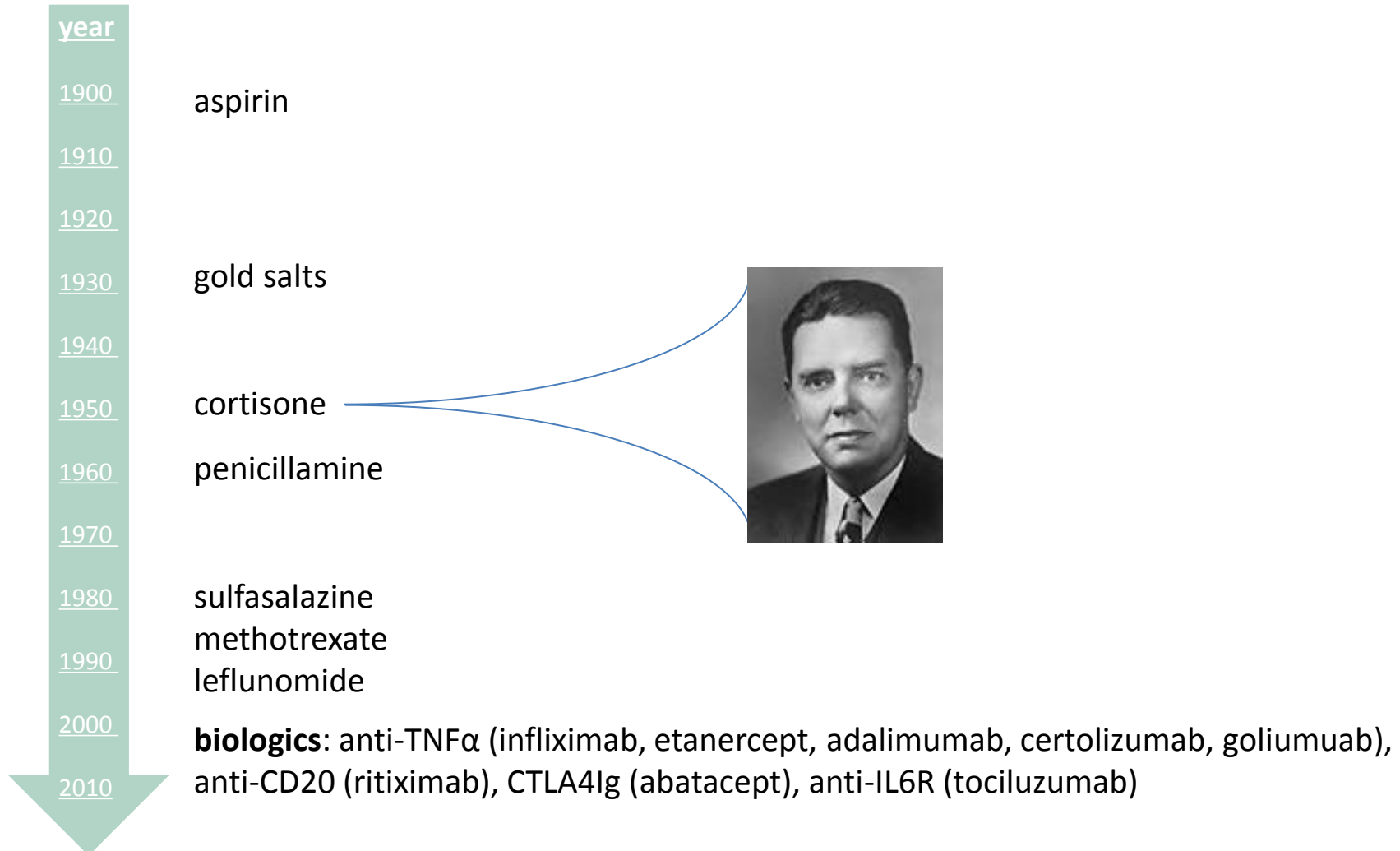
Synovial inflammation in RA



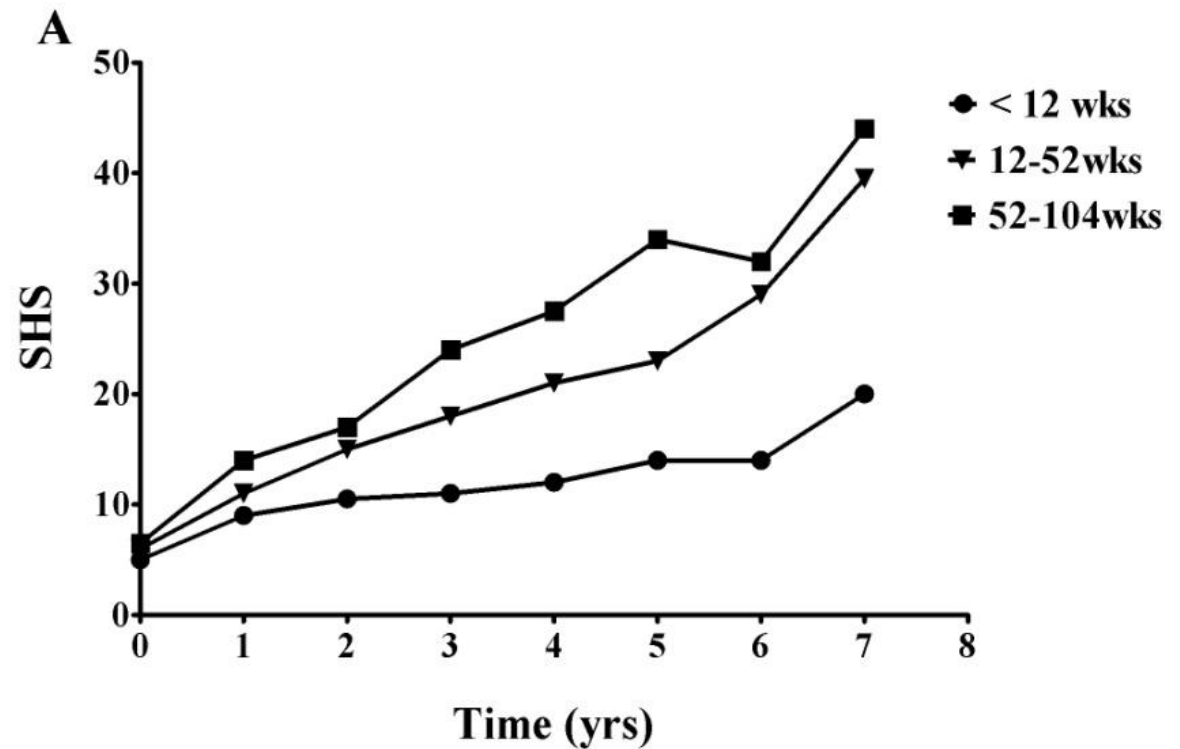
Synovial inflammation causes damage



“Almost any drug that has done any good in any other disorder has been tried in the treatment of rheumatoid arthritis, and if faith and optimism are present in either patient or doctor some good results will be obtained for a time in every case, the highest proportion occurring when abundant faith is present in both doctor and patient” **Frank Dudley Hart**

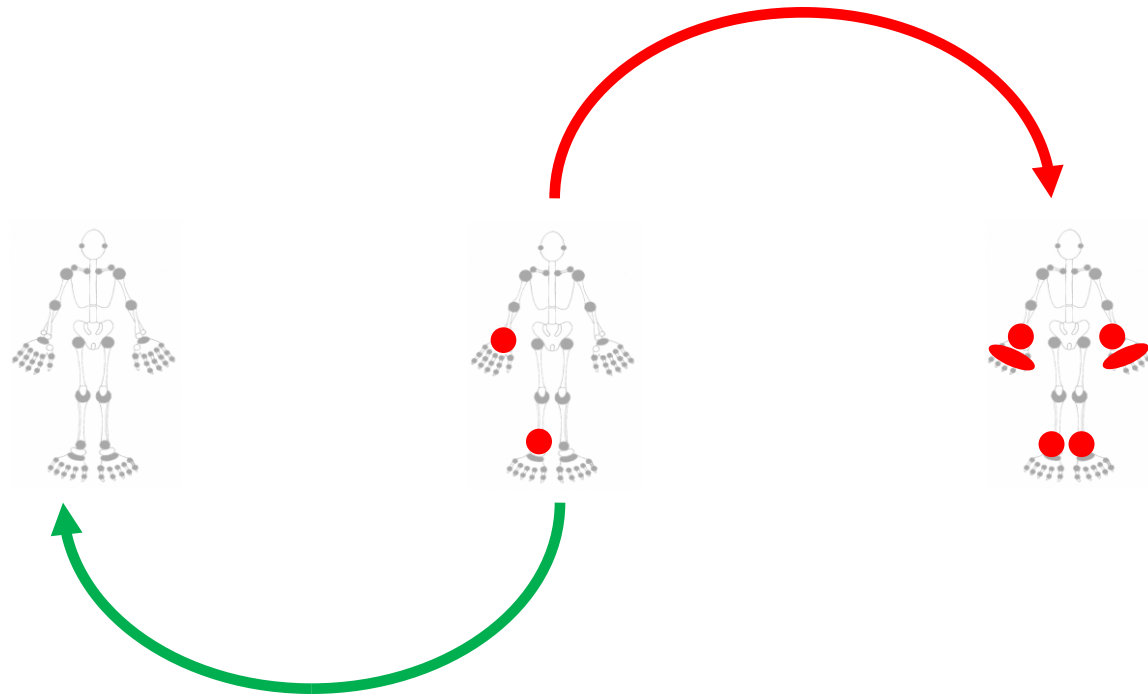


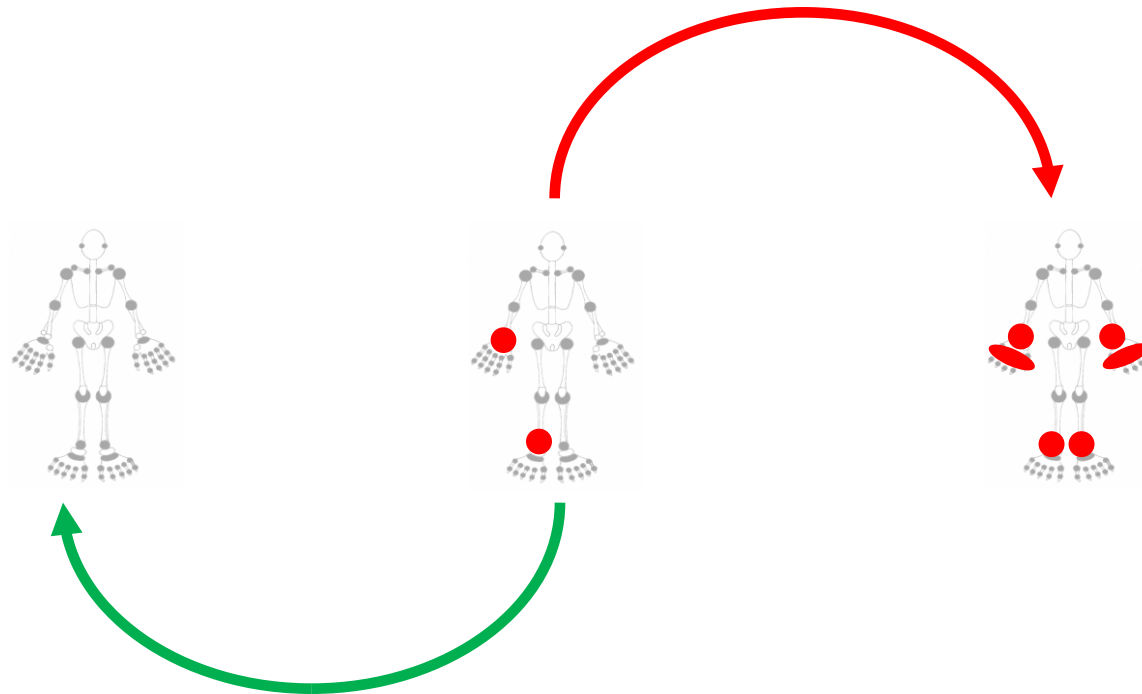
The impact of delayed treatment



van der Linden M et al. *Arthritis Rheum* 2010

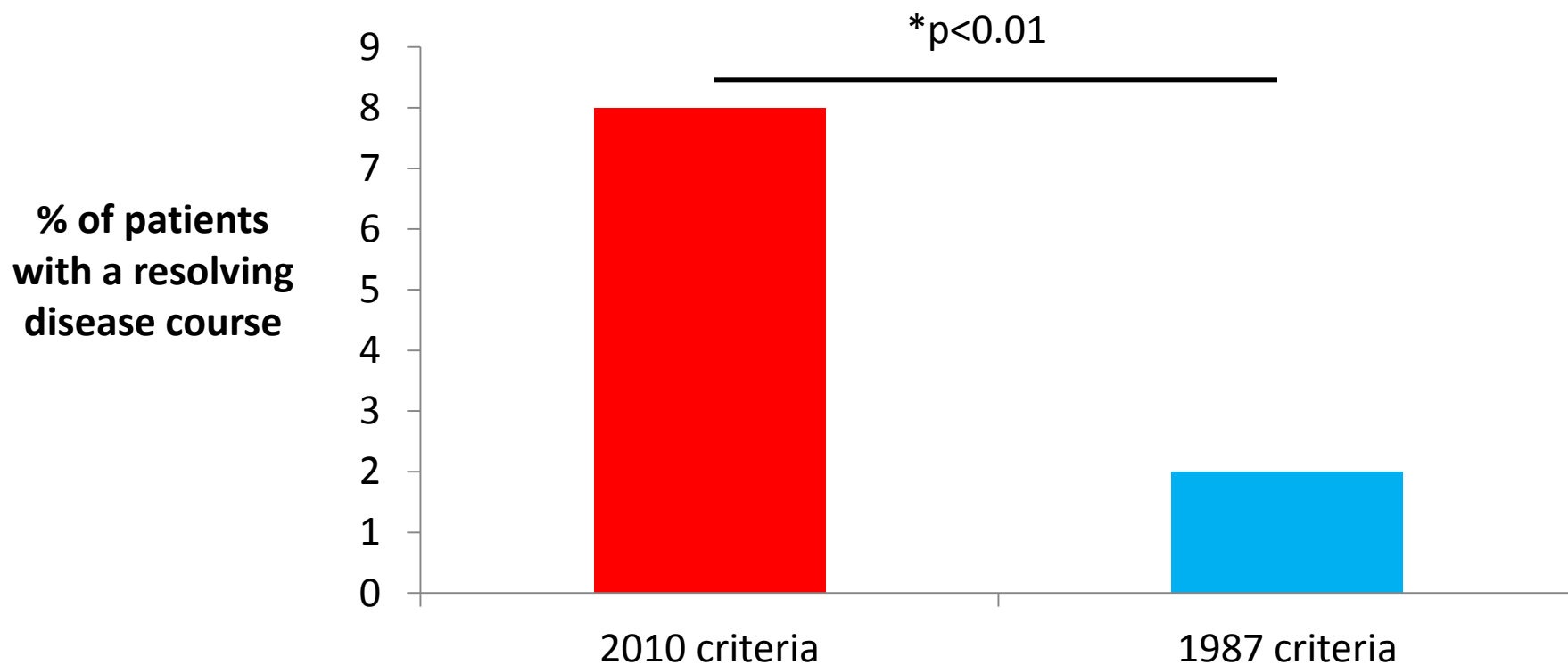
Inflammatory arthritis is common and not everyone develops RA





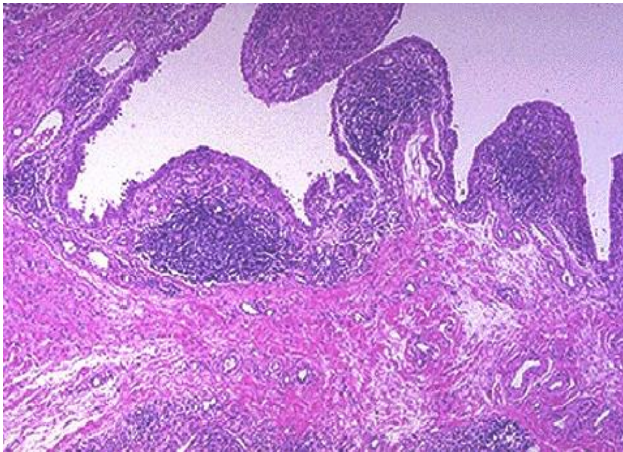
3/31/2016

Classification criteria for RA identify patients whose disease spontaneously resolves



Autoantibodies

*FROM THE PATHOLOGICAL-ANATOMICAL LABORATORY OF
ULLEVAAL HOSPITAL, OSLO, AND THE BACTERIOLOGICAL
INSTITUTE OF THE UNIVERSITY OF OSLO.*



ON THE OCCURRENCE OF A FACTOR IN HUMAN
SERUM ACTIVATING THE SPECIFIC AGGLUTI-
NATION OF SHEEP BLOOD CORPUSCLES.

By *Erik Waaler*, M. D.

(Received for publication December 15th, 1939).



Autoantibodies predict the development of RA in patients with early arthritis

	RF	anti-CCP
Sensitivity	68	68
Specificity	92	96
PPV	68	81
NPV	92	93



Variable		Score
Age (years)		X 0.02
Female		1.0
Joint distribution	small joints hands / feet	0.5
	symmetry	0.5
	upper limbs	1.0
	upper & lower limbs	1.5
Morning stiffness (on 100 VAS)	26-90mm	1.0
	> 90 mm	2.0
Tender joints (n)	4-10	0.5
	> 10	1.0
Swollen joints (n)	4-10	0.5
	> 10	1.0
CRP	5-50	0.5
	>50	1.5
RF +ve		1.0
Anti-CCP Ab +ve		2.0



ARTHRITIS & RHEUMATISM
Vol. 58, No. 8, August 2008, pp 2241-2247
DOI 10.1002/art.23681
© 2008, American College of Rheumatology

Validation of a Prediction Rule for Disease Outcome in Patients With Recent-Onset Undifferentiated Arthritis

Moving Toward Individualized Treatment Decision-Making

Annette H. M. van der Helm-van Mil,¹ Jacqueline Detert,² Saskia le Cessie,¹ Andrew Filer,³
Hans Bastian,² Gerd R. Burmester,² Tom W. J. Huizinga,¹ and Karim Raza³



The best predictive instrument we have?

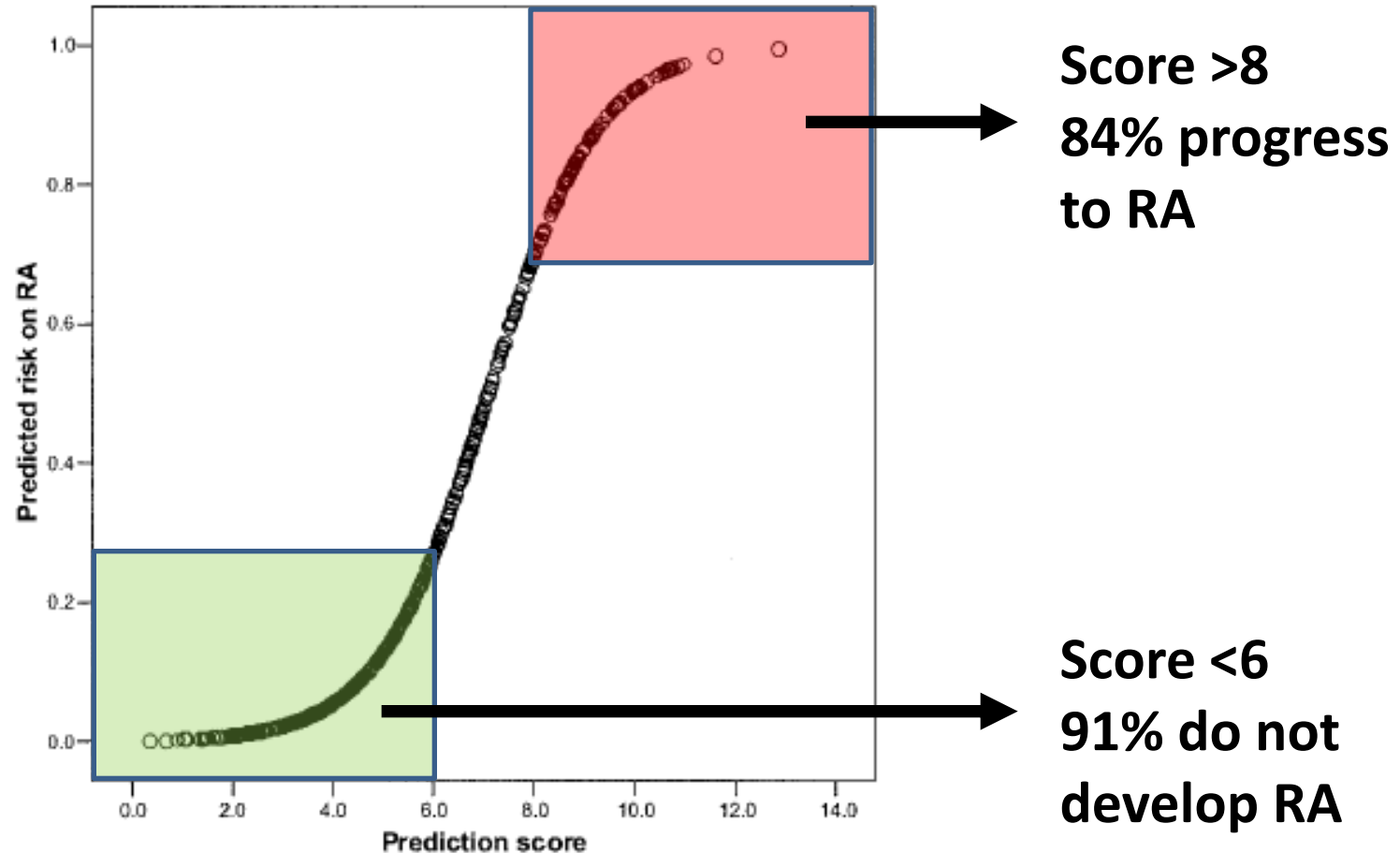


Figure 2. Predicted risk of rheumatoid arthritis (RA) as a function of the prediction score.

The best predictive instrument we have?

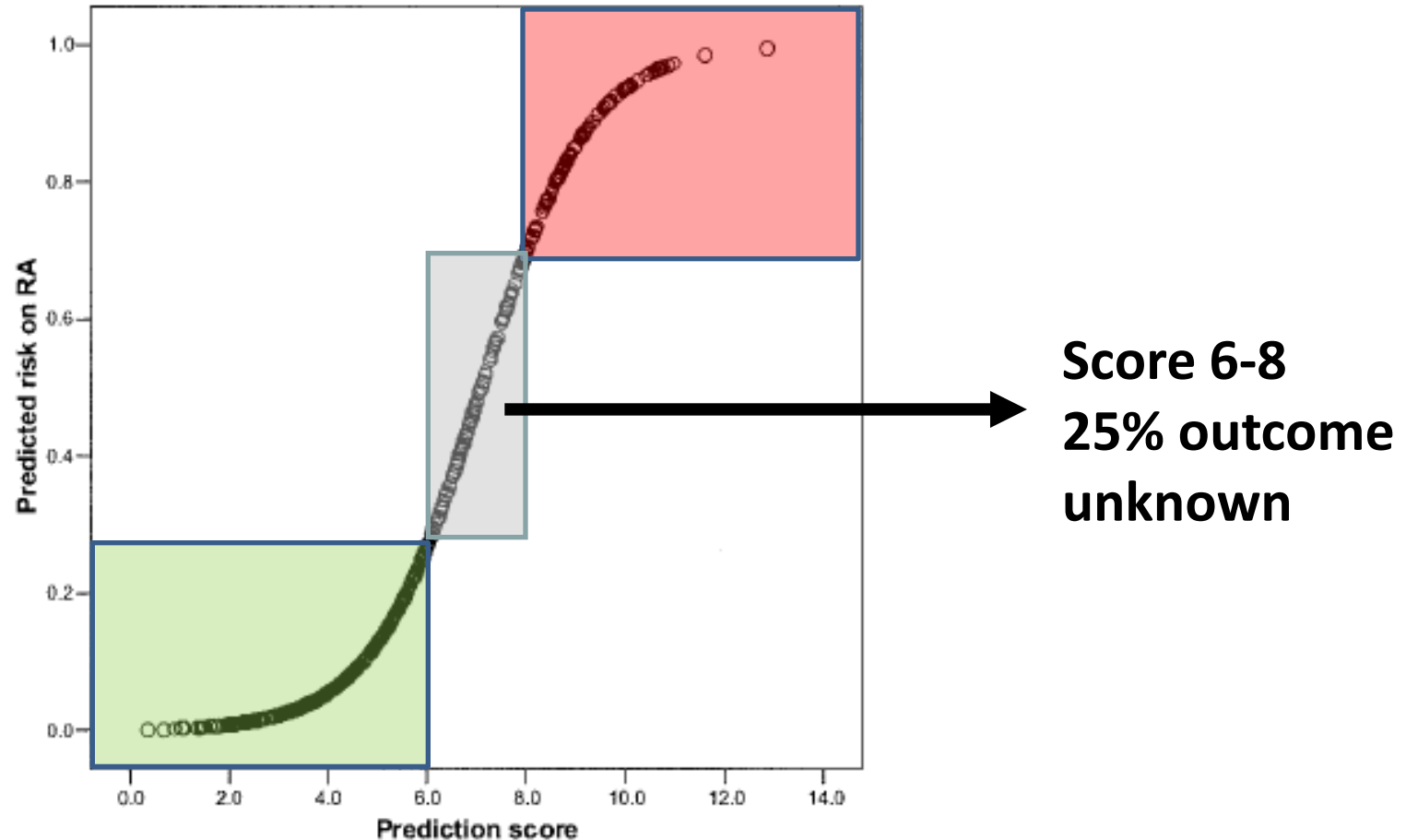
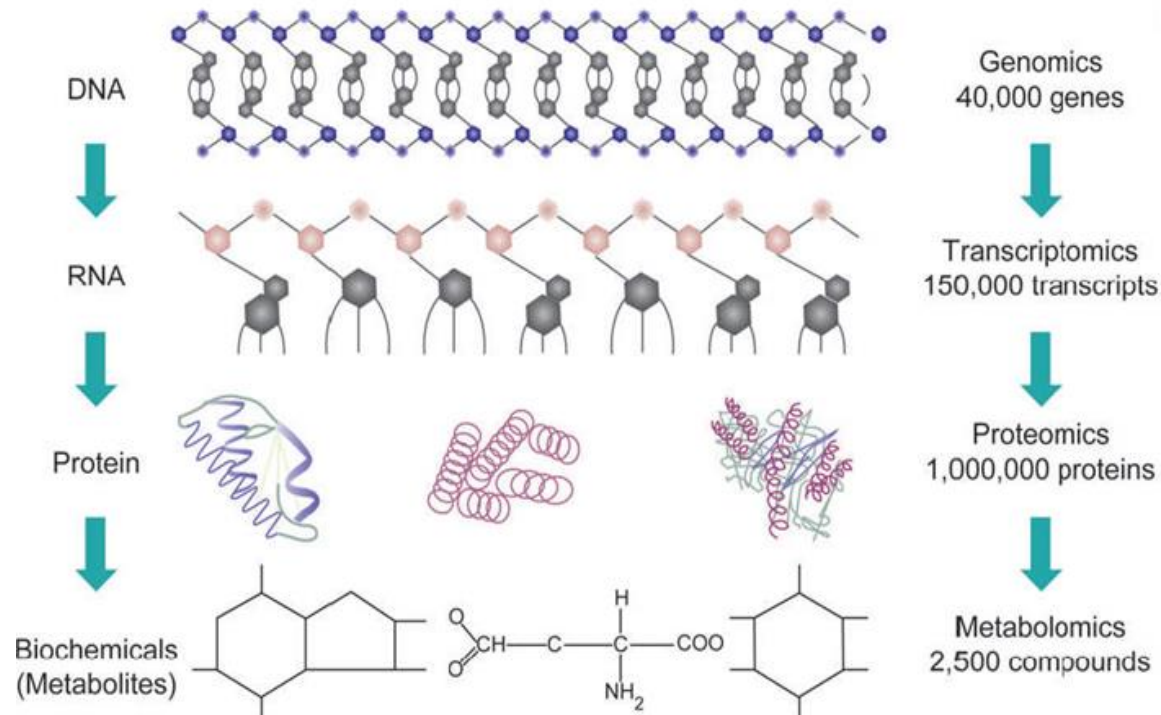


Figure 2. Predicted risk of rheumatoid arthritis (RA) as a function of the prediction score.

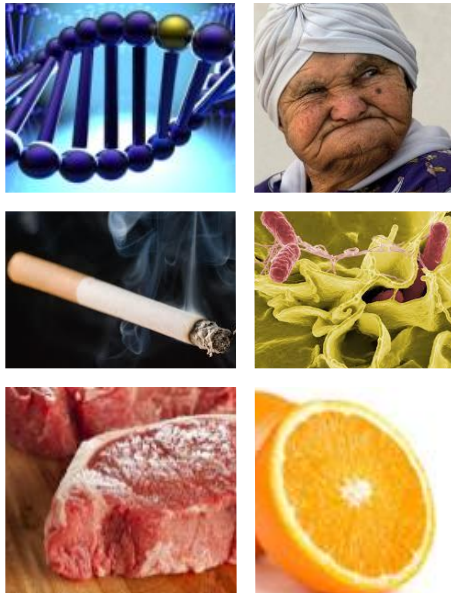


Measuring the metabolome to predict outcome in early arthritis

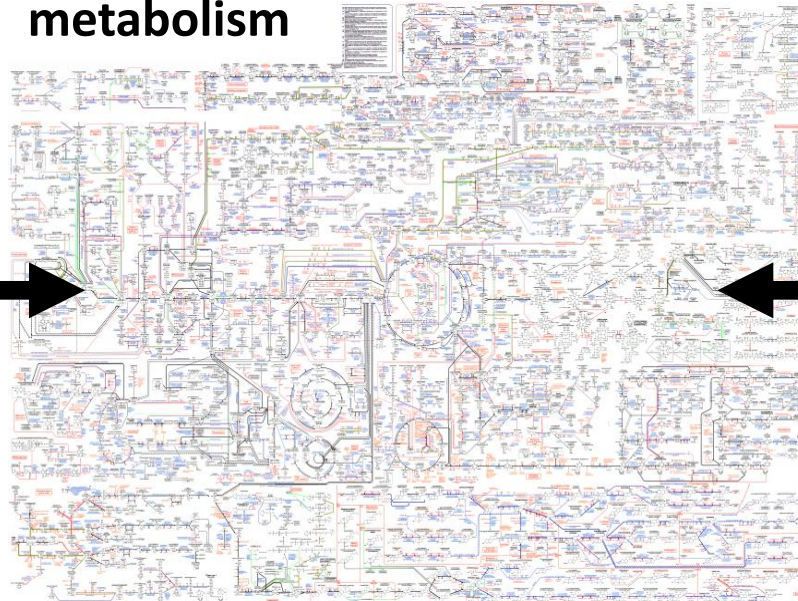


Measuring the metabolome to predict outcome in early arthritis

Risk factors



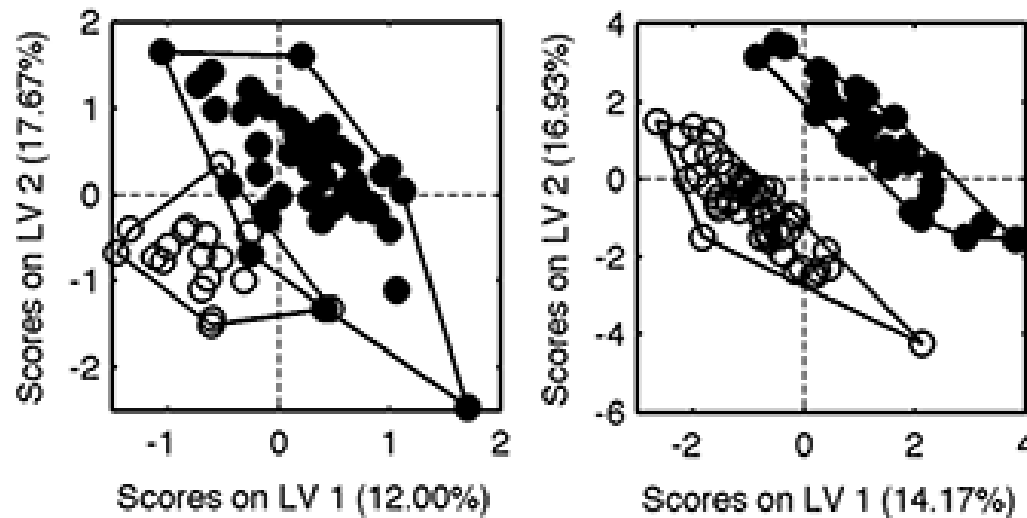
metabolism



Inflammation



The serum metabolome predicts outcome in early arthritis

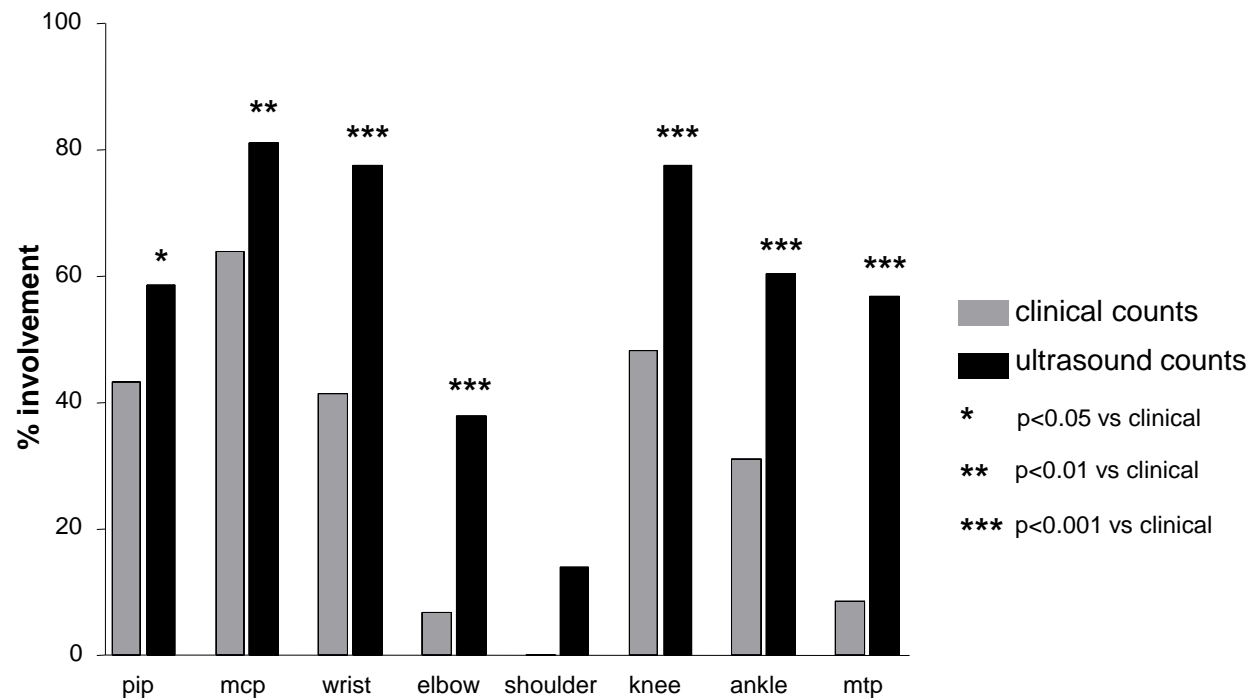
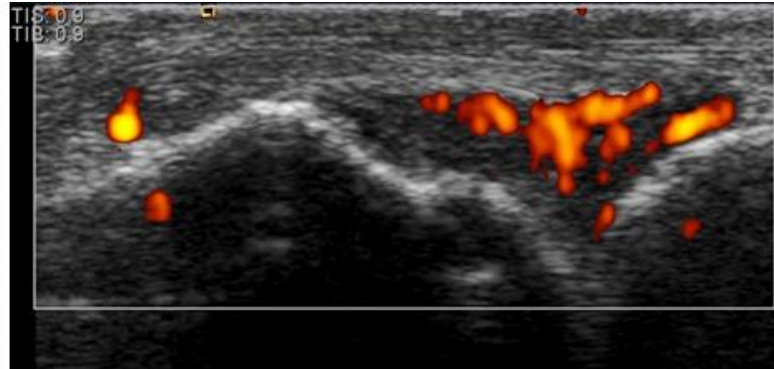
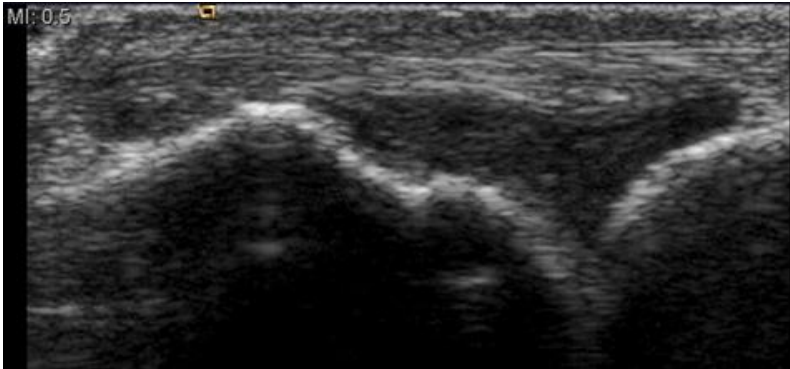


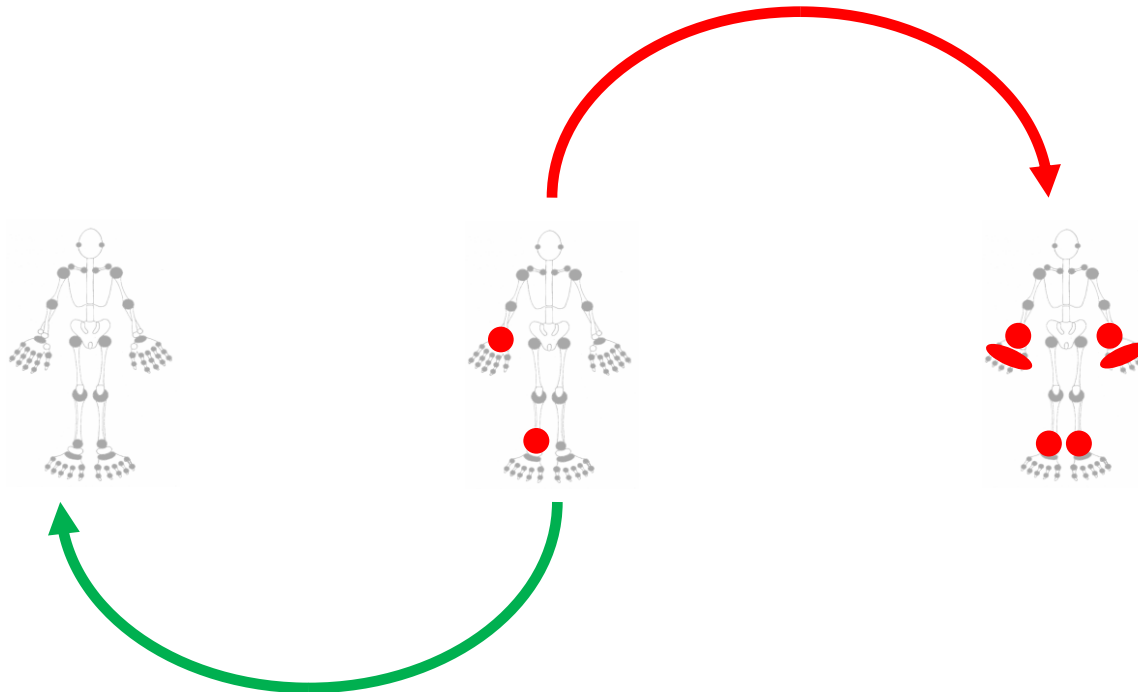
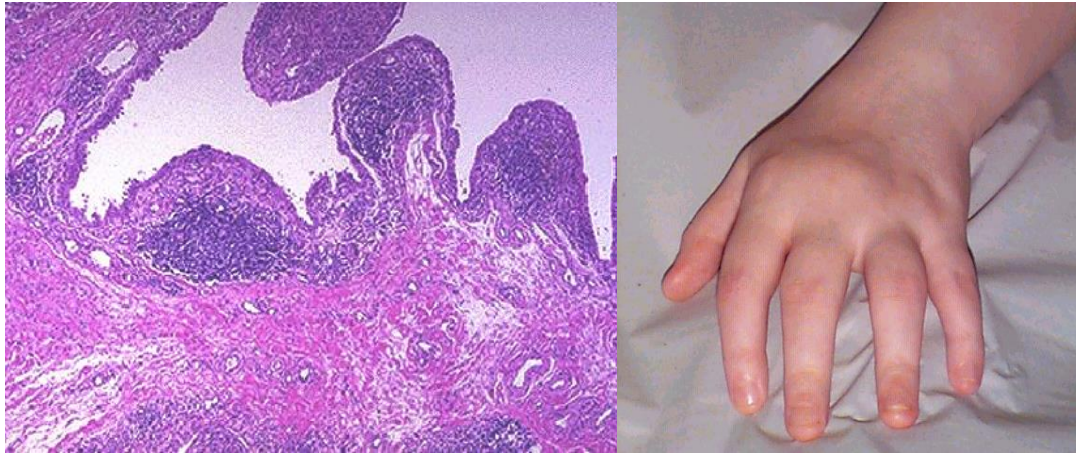
- Resolving arthritis
- Rheumatoid arthritis

Aiming for better prediction tools

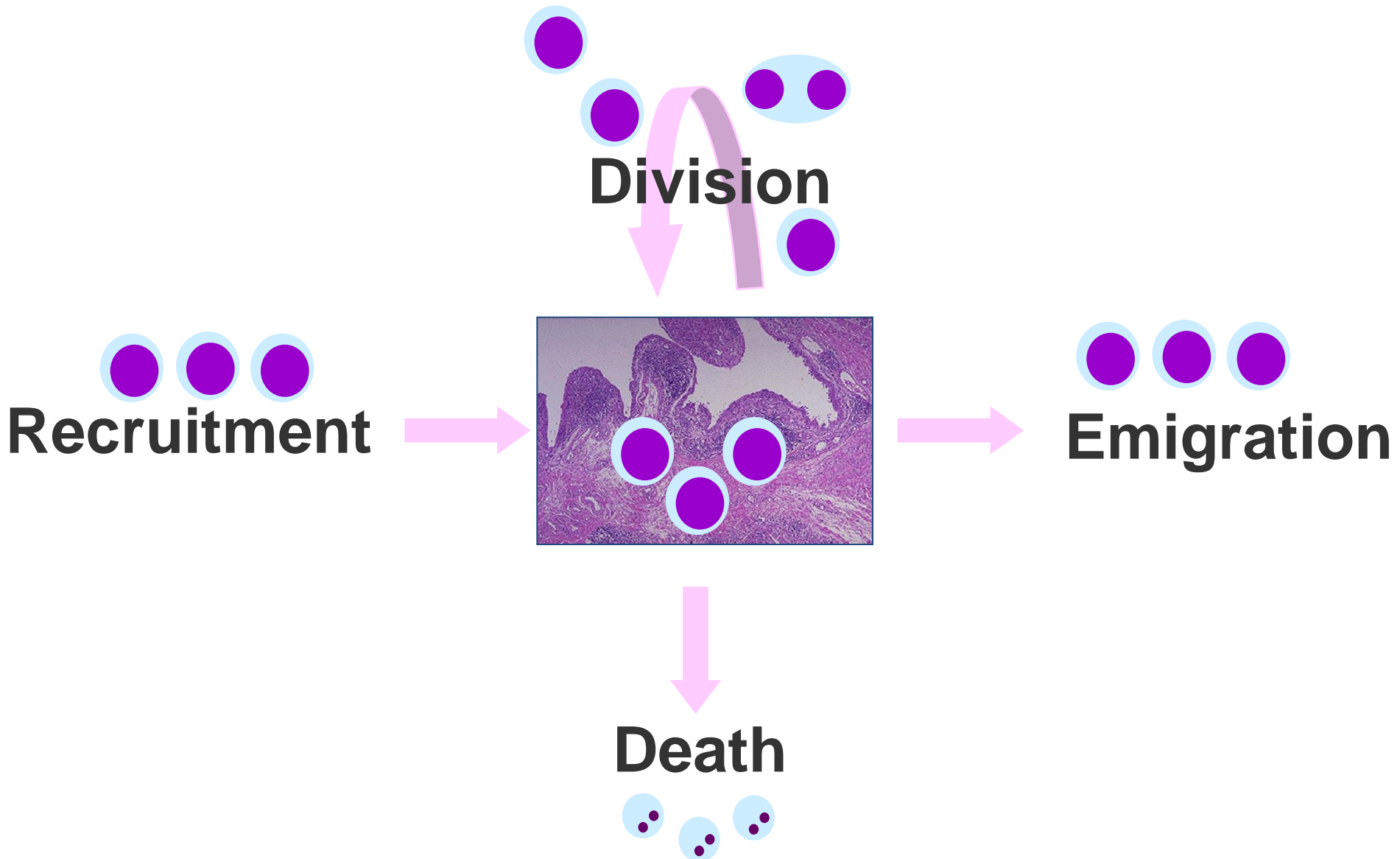
Variable		Score
Age (years)		X 0.02
Female		1.0
Joint distribution	small joints hands / feet	0.5
	symmetry	0.5
	upper limbs	1.0
	upper & lower limbs	1.5
Morning stiffness (on 100 VAS)	26-90mm	1.0
	> 90 mm	2.0
Tender joints (n)	4-10	0.5
	> 10	1.0
Swollen joints (n)	4-10	0.5
	> 10	1.0
CRP	5-50	0.5
	>50	1.5
RF +ve		1.0
Anti-CCP Ab +ve		2.0

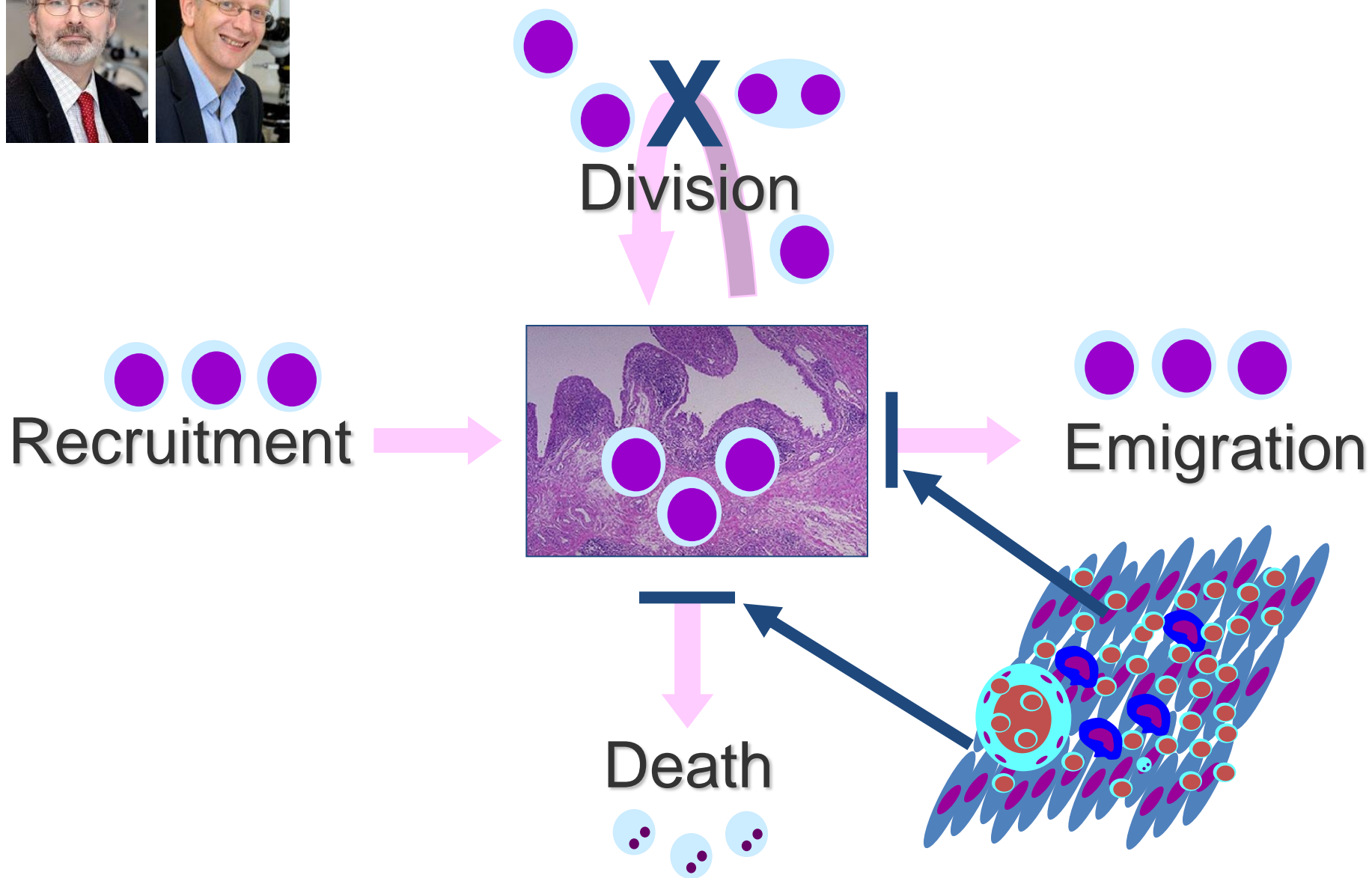
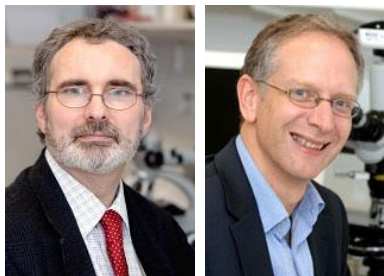
Ultrasound in very early synovitis



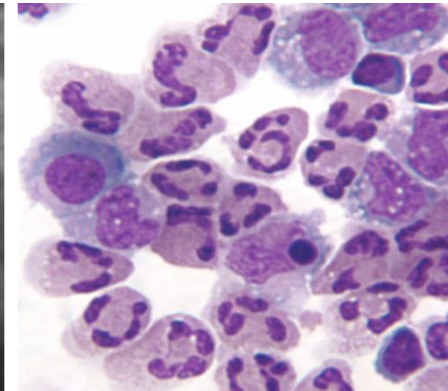
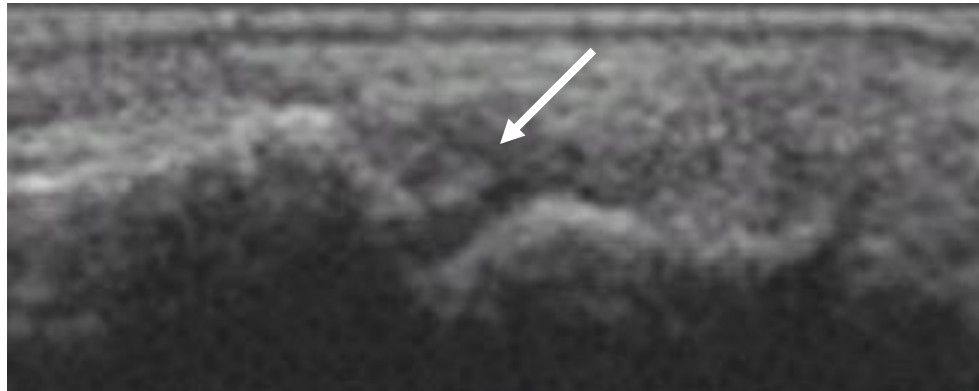
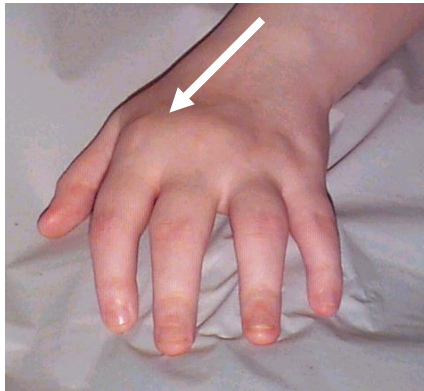


Dynamics of a cellular infiltrate

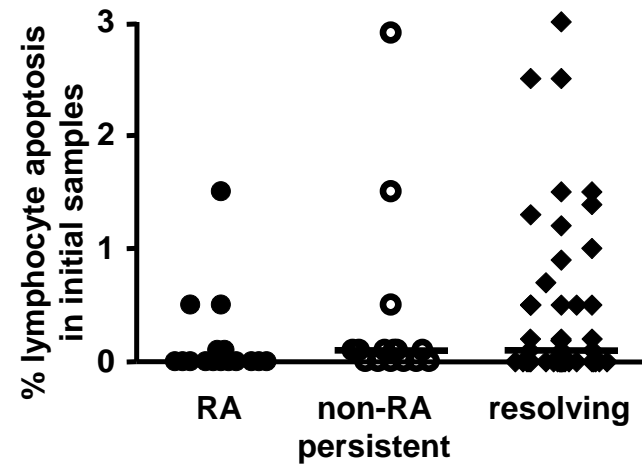
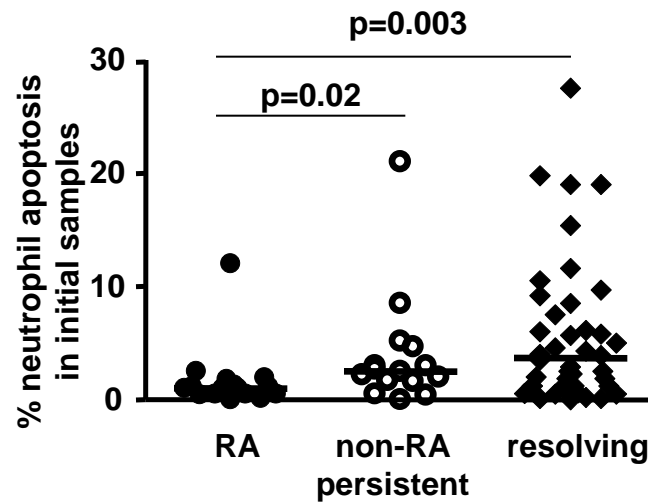
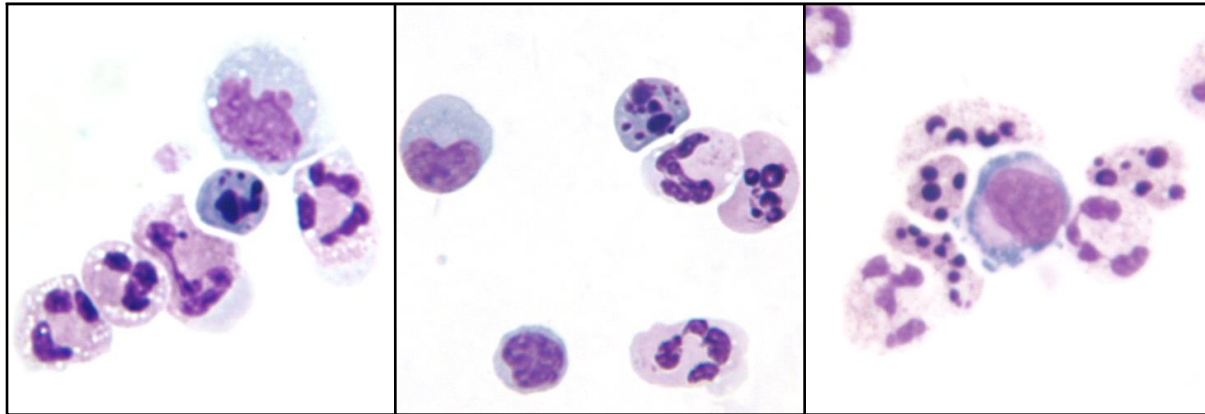




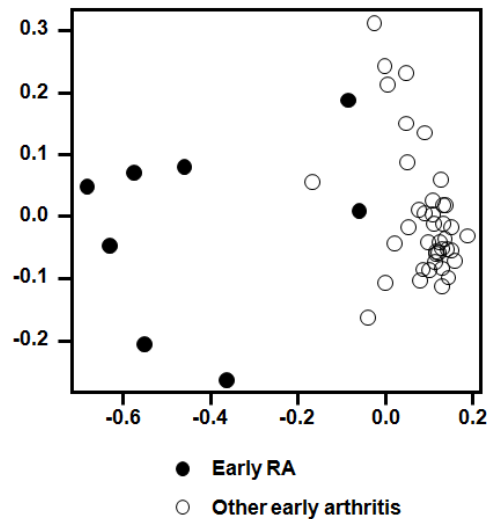
Synovial pathology in early arthritis



Leukocyte apoptosis is inhibited in very early RA



Synovial fluid cytokine and growth factor profiles in very early RA...



T cell related

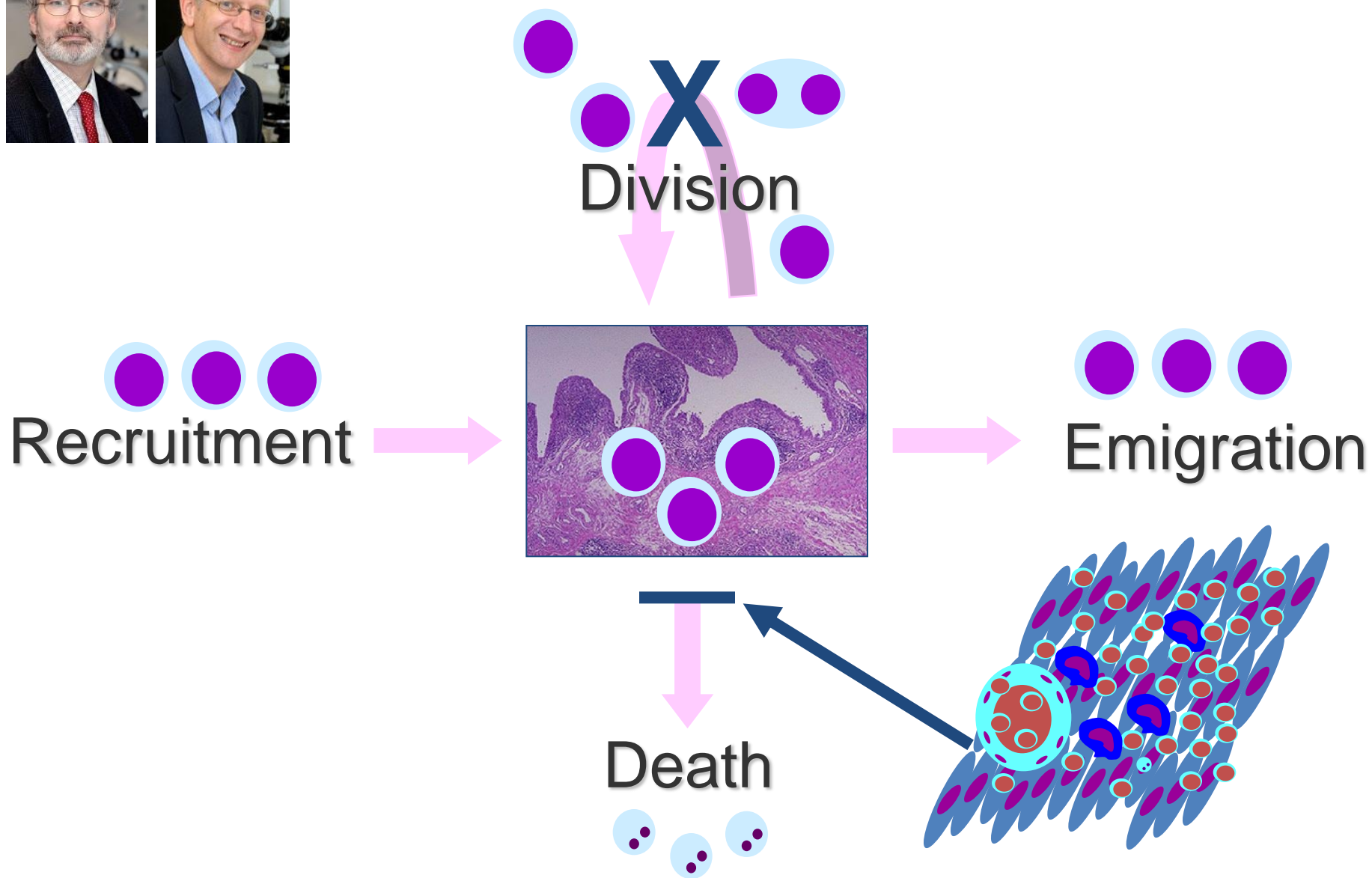
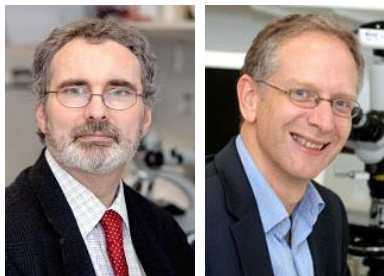
IL-2
IL-4
IL-13
IL-17

Anti-apoptotic

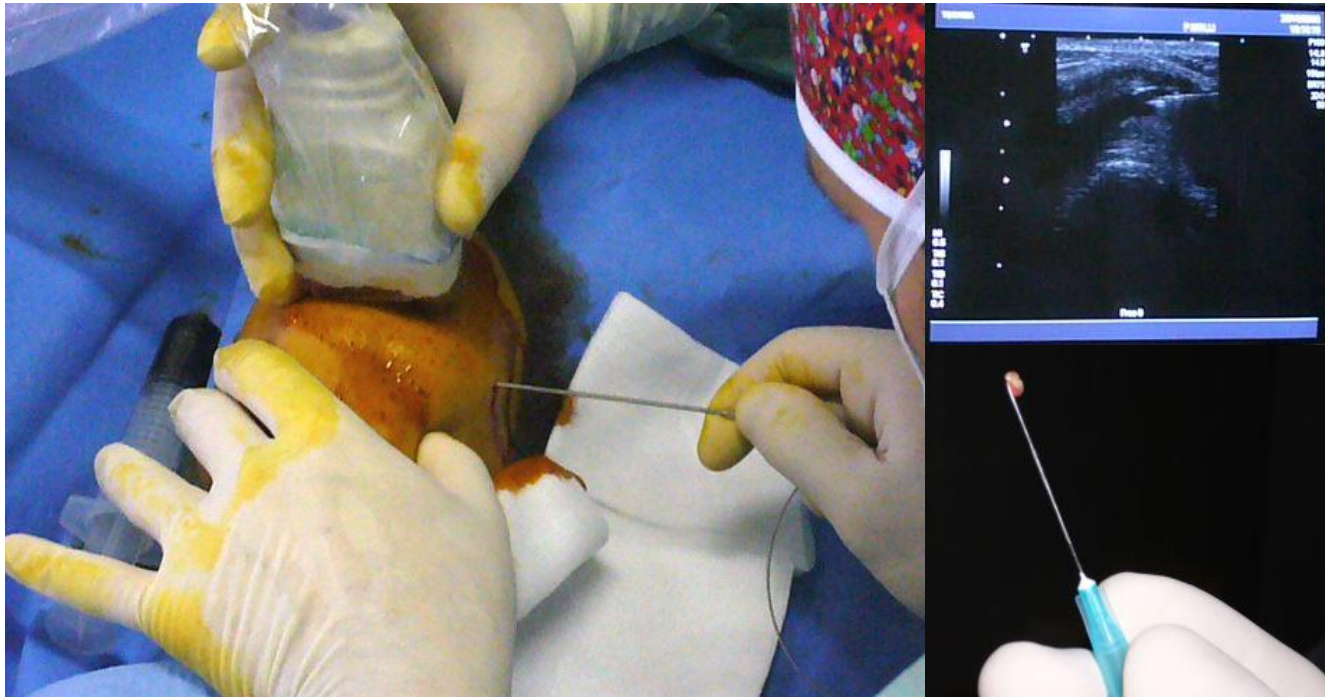
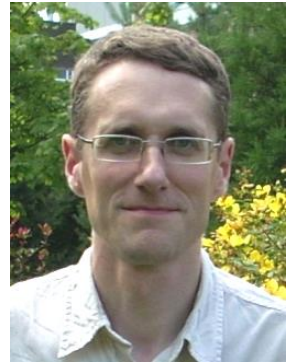
IL-15
GM-CSF
VEGF

Stromal

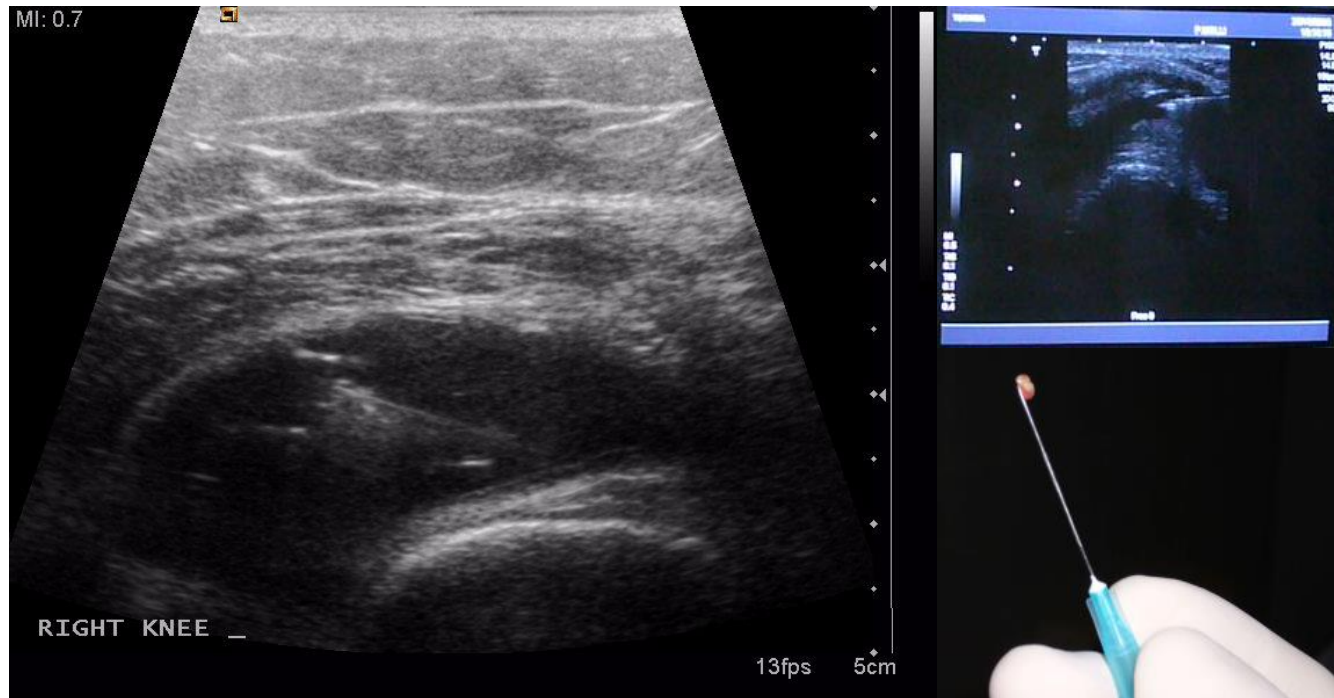
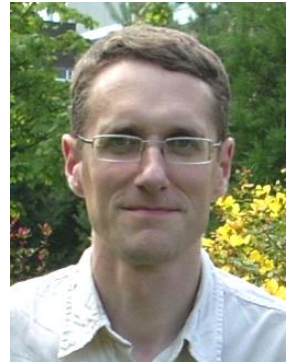
bFGF
EGF



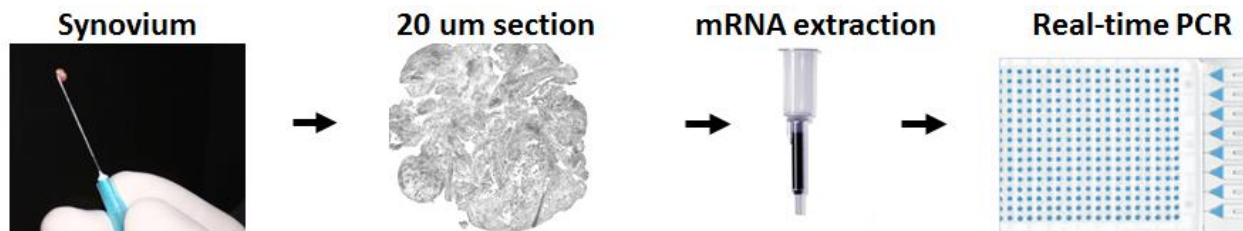
Ultrasound guided synovial biopsy



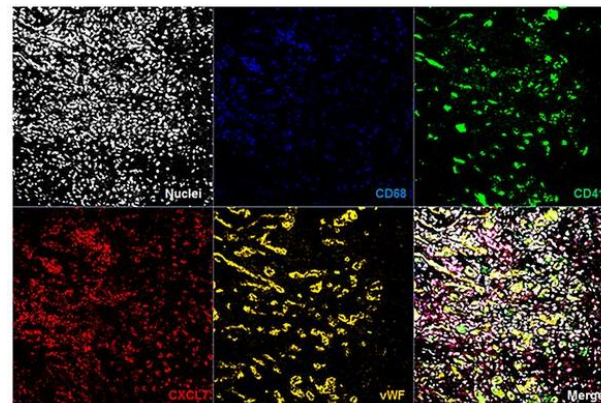
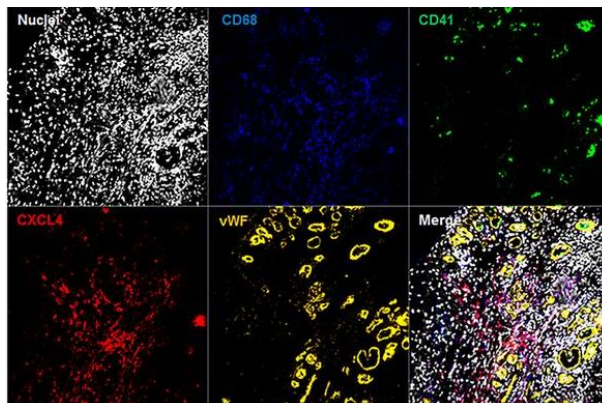
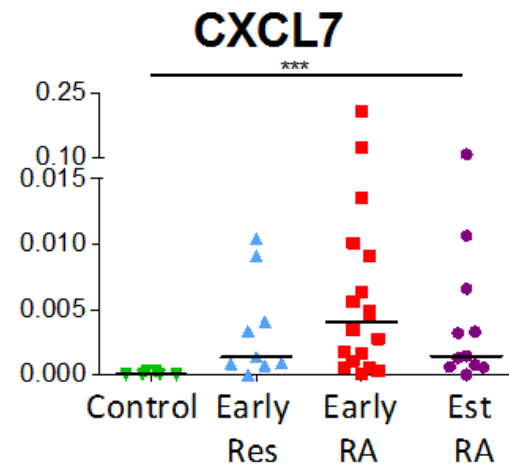
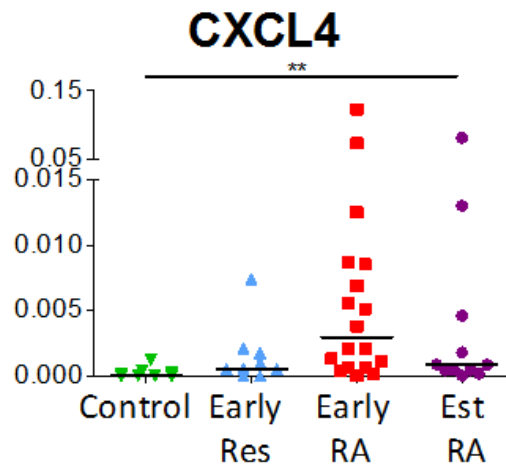
Ultrasound guided synovial biopsy

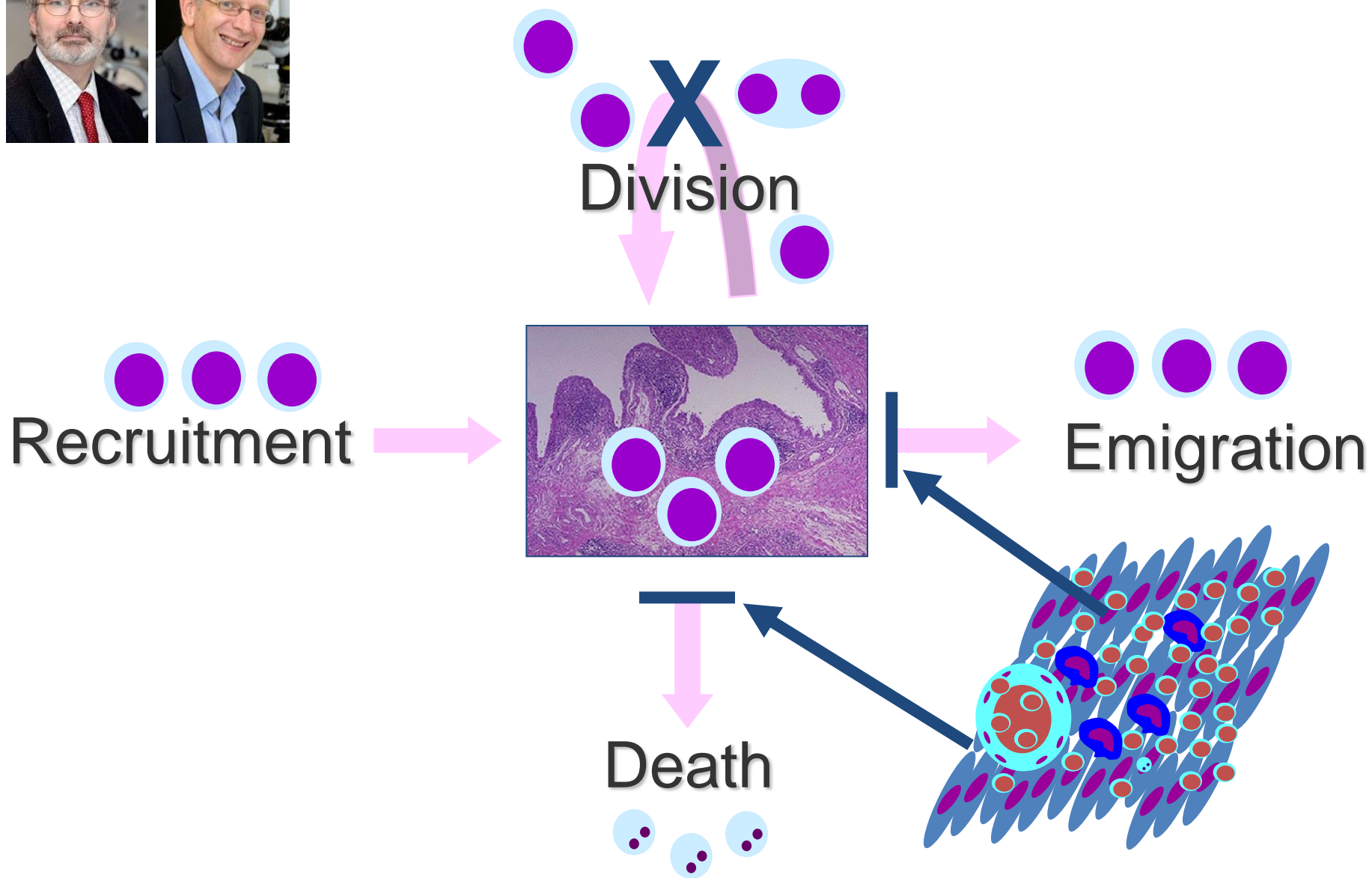
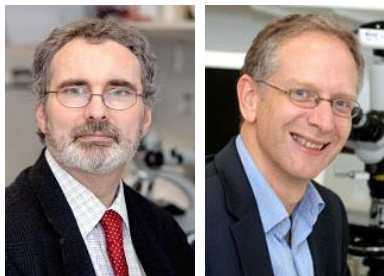


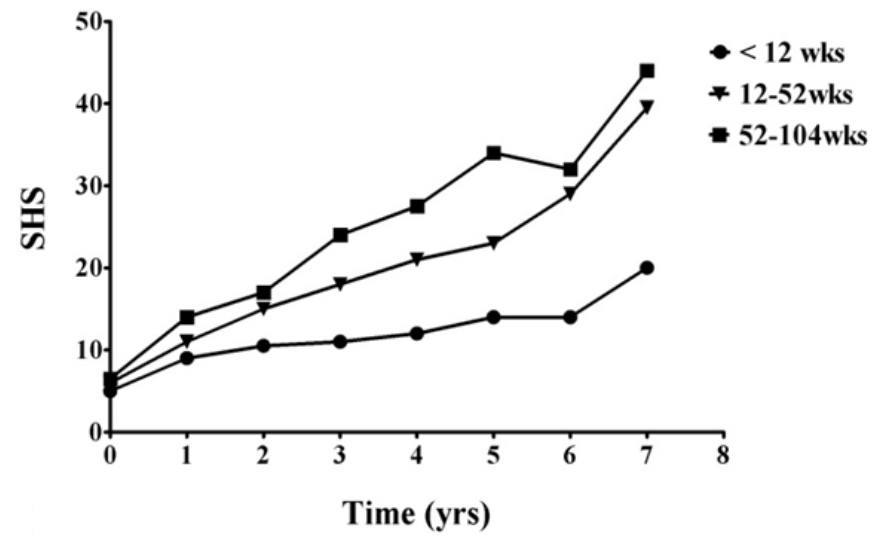
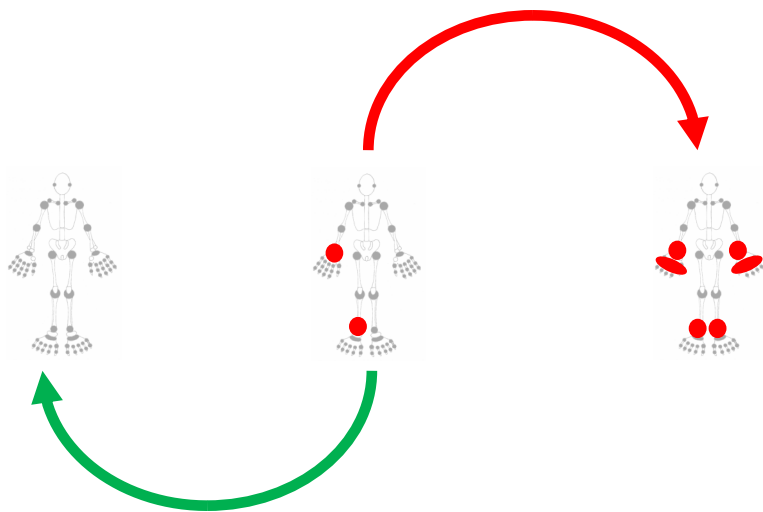
Synovial tissue cytokine expression



CXCL4 and CXCL7 mRNA expression in early arthritis





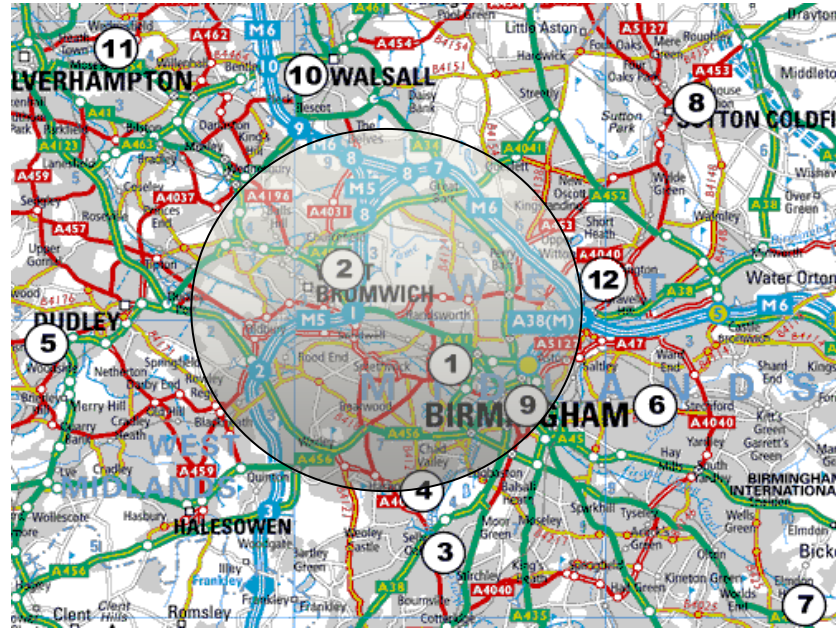
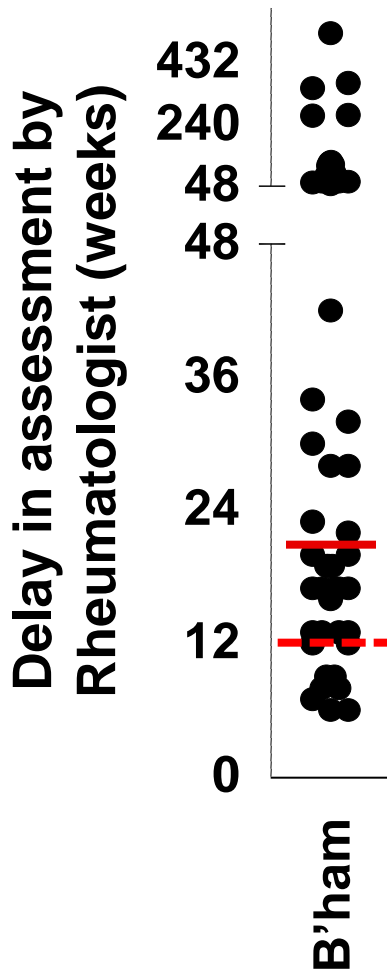


Early Arthritis Clinics: If You Build It Will They Come?

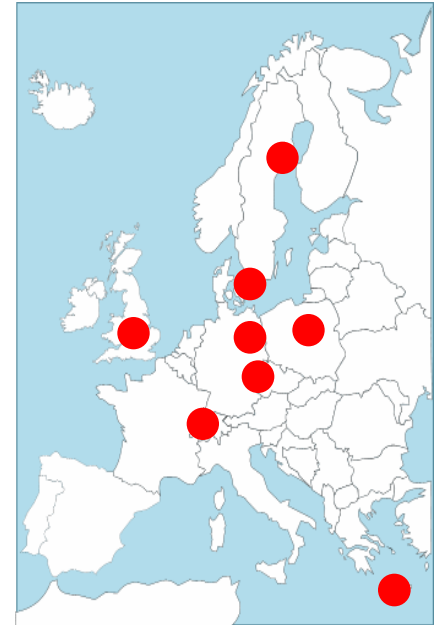
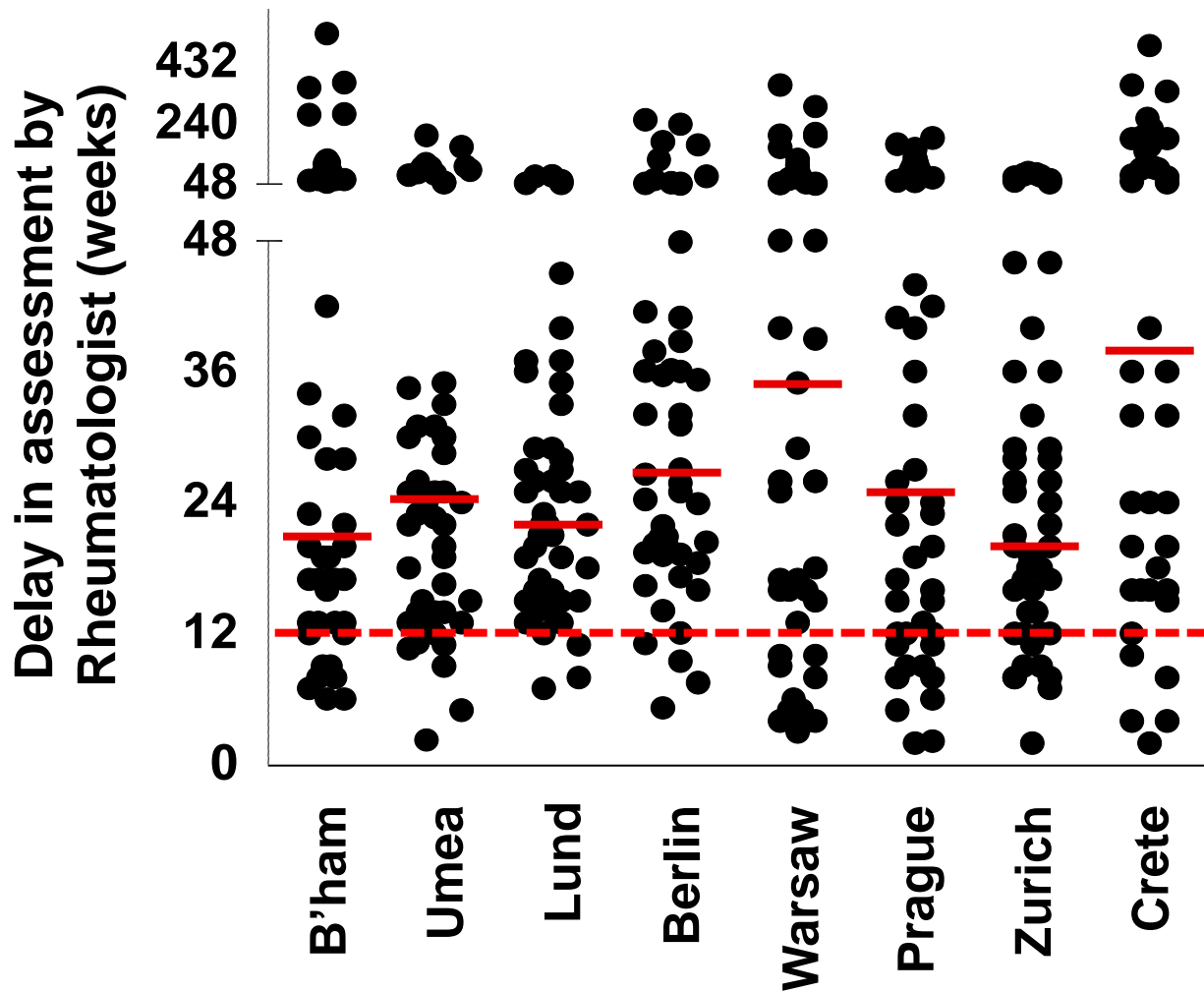


In this issue of *The Journal*, Raza and coworkers examine the utility of anti-cyclic citrullinated peptide (CCP) antibodies in patients with very early inflammatory arthritis⁷. Their findings clearly show the practicality and importance of serologic testing for both serum rheumatoid factor (RF) and anti-CCP antibodies in making an accurate diagnosis in those with persistent symptoms of RA. These findings serve as a challenge to the rheumatologist to amend the manner in which early arthritis patients are currently diagnosed and treated.

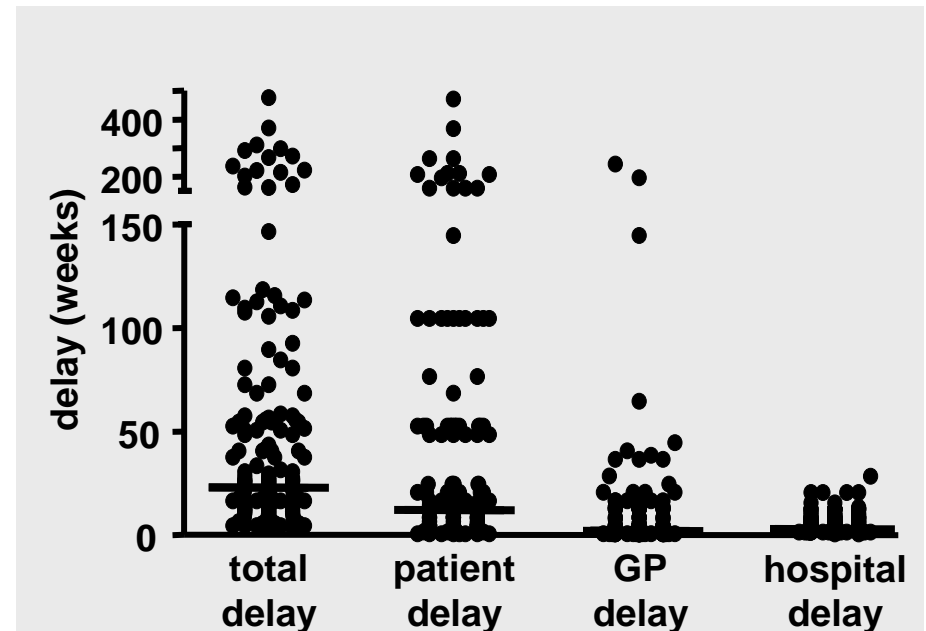
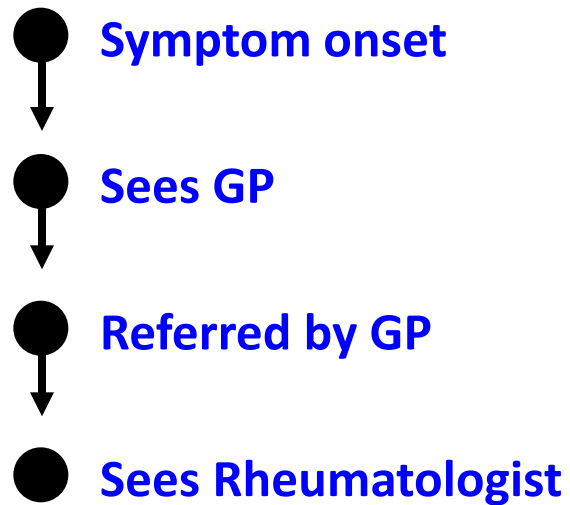
Capturing patients early: how well do we do?



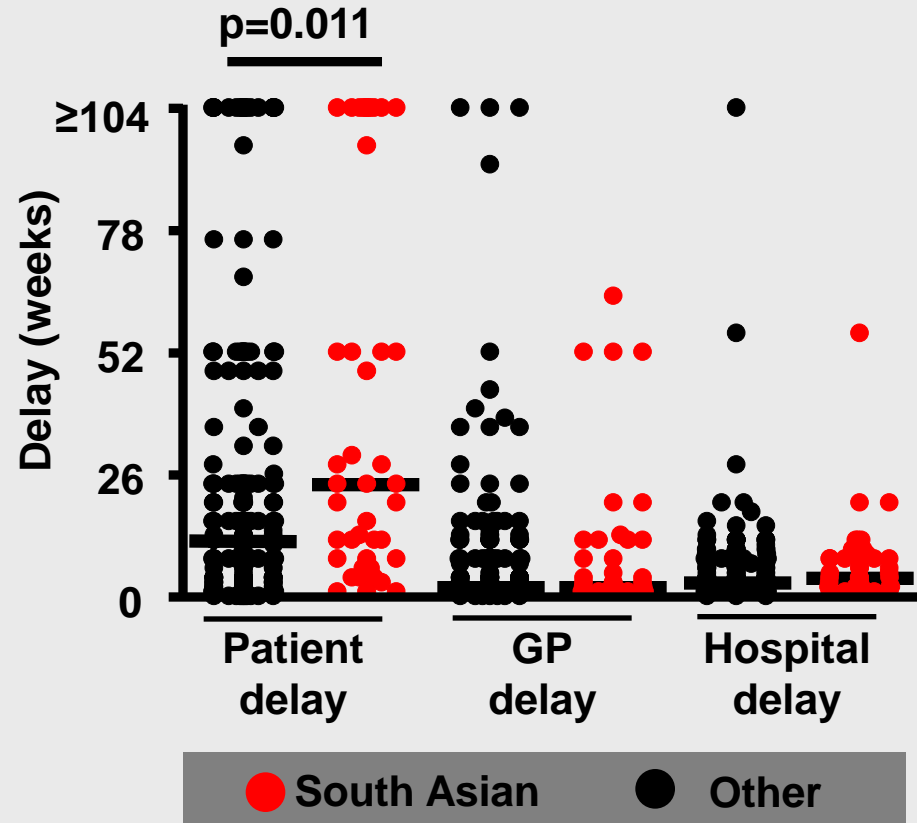
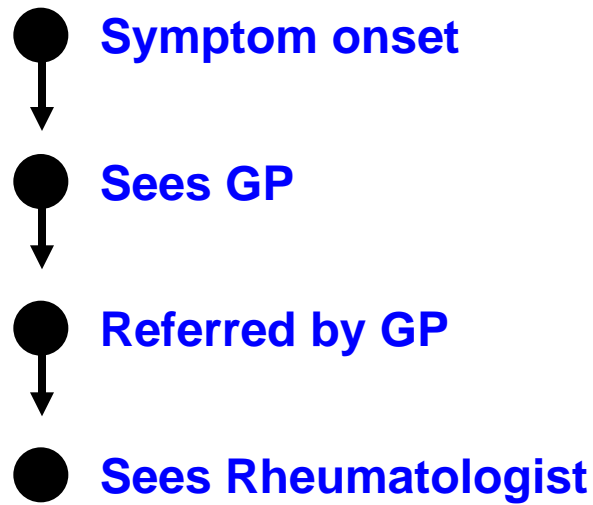
Capturing patients early: how well do we do?



Delays in assessment



influence of ethnicity



Four main themes explained patient delays

- **Symptom experience:** an insidious onset of mild symptoms.
- **Symptom evaluation:** an attribution of symptoms to specific inducing factors (e.g. exercise / lack of exercise).
- **Lack of knowledge of RA and available therapies**
- **Negative experience of and attitudes towards health care providers**





Services for people with rheumatoid arthritis

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL HC 523 Session 2009-2010 (15 July 2009)

7 Productivity gains could be achieved and patient quality of life improved through better integration and coordination of services, leading to quicker diagnosis and earlier treatment, but in the short-term costs to the NHS would increase. Currently, ten per cent of people with the disease are treated within three months of symptom onset. Our economic modelling suggests increasing this to 20 per cent could initially increase costs to the NHS by £11 million over five years due to higher expenditure on drugs and the associated costs of monitoring people with the disease (after around nine years, earlier treatment could become cost neutral to the NHS). This increase in earlier treatment could, however, result in productivity gains of £31 million for the economy due to reduced sick leave and lost employment.

UNIVERSITY OF BIRMINGHAM

Search... Go

Working here | News | Events | Visit

Postgraduate | Research | International | Business

Law and Dental Sciences | Birmingham Rheumatology Research Patient Partnership (R2P2)

Birmingham Rheumatology Research Patient Partnership (R2P2)

R2P2 News

What is R2P2?
We believe that patients should have a say in research that is potentially for their benefit. The Birmingham Rheumatology Research Patient Partnership (R2P2) is a group of patients who support research studies at the University of Birmingham, Sandwell and West Birmingham Hospitals NHS Trust and University Hospitals Birmingham NHS Foundation Trust.

What is Research and why should patients and the public be involved?

Rheumatology Research Group (RRG)

Current Research Projects

Birmingham Rheumatology Research Patient Partnership

NHS

Karen Weaver, 47, rheumatoid arthritis patient

Swollen joints Stiffness Pain

These are the signs of rheumatoid arthritis. A serious disease where the body's defence system attacks the joints. This type of arthritis can strike at any age and if left untreated can cause permanent disability. The earlier it's spotted, the easier it is to treat. So if you've noticed the signs, talk to your doctor.

BETTER TO BE CLEAR

nhs.uk/r



3/31/2016

<http://campaigns.dh.gov.uk/2015/01/20/rheumatoid-arthritis/> (Accessed February 2015).