



autoimmune disease

rheumatoid arthritis

LADUCA April 2014

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Medical Director
RGAA

autoimmune disease

- concept of autoimmune disease
- spectrum of autoimmune disease
- diagnosis of autoimmune disease

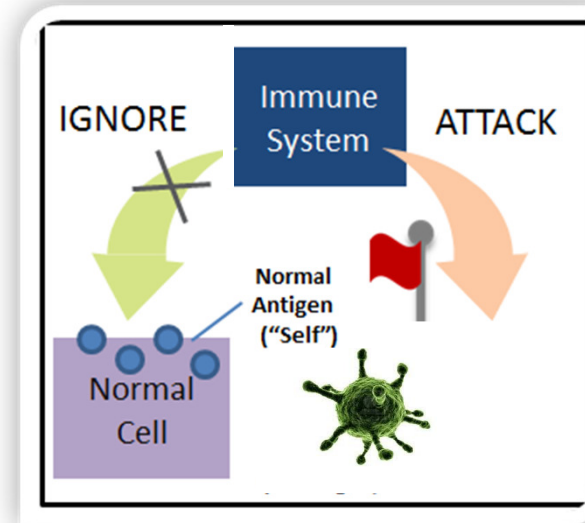
rheumatoid arthritis

- prevalence
- diagnosis
- morbidity
- disability
- mortality



autoimmune disease

- immune system
 - tolerates self
 - no immune attack on self
 - reacts only to non self
 - provides protection from non self

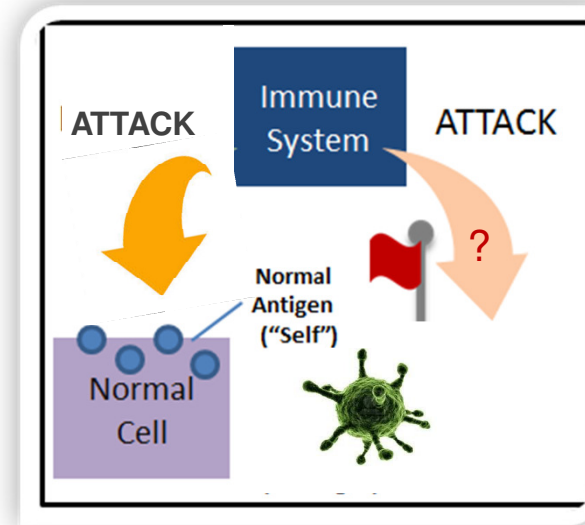


autoimmunity and autoimmune disease

- loss of tolerance to self
- production of antibodies to normal tissues
 - organ damage
 - organ failure
 - excess morbidity
 - excess mortality
- may have reduced capacity to protect self
 - loss of normal immunity

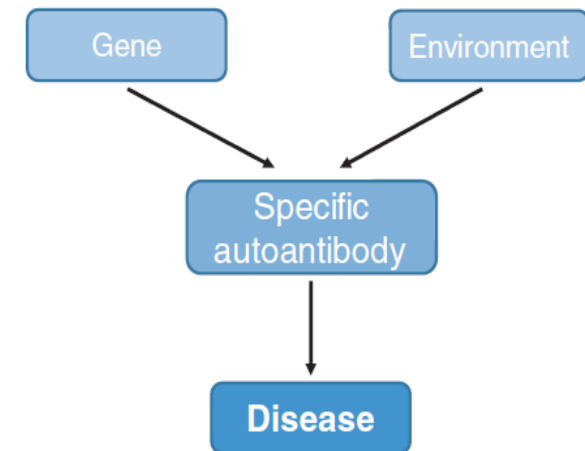
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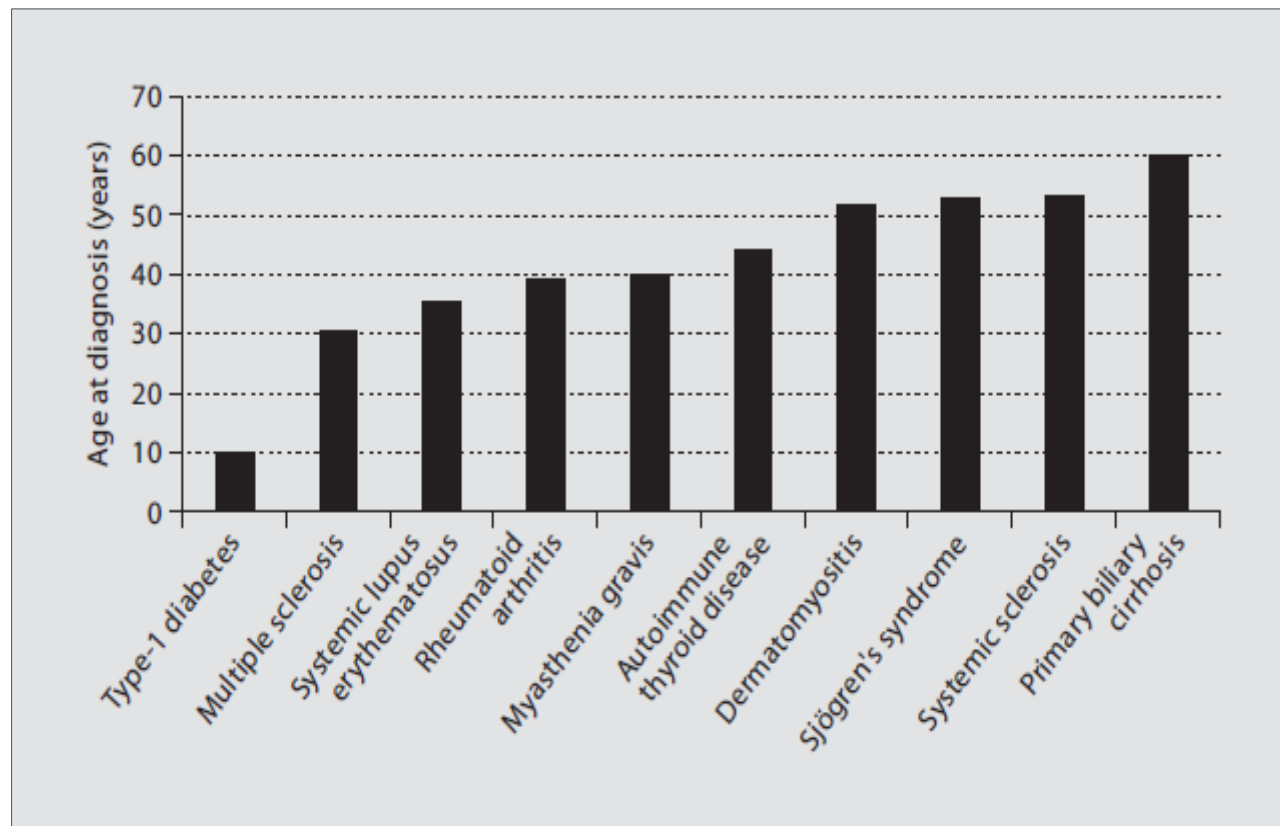


autoimmune disease - the common ones we see

The original classification of autoimmune diseases
into organ-specific and non-organ-specific

Organ-specific	Non-organ-specific
Hashimoto's thyroiditis	Sjögren's syndrome
Graves' disease	APECED autoimmune polyendocrine syndrome
Pernicious anaemia	Rheumatoid arthritis
Addison's disease	Systemic lupus erythematosus
Myasthenia gravis	
Type 1 diabetes	
Multiple sclerosis	

autoimmune disease - age at diagnosis



autoimmune disease - gender

Sex ratios of autoimmune diseases

F/M ratio	Diseases
9:1	Sjögren Hashimoto - hypothyroidism Graves' - hyperthyroidism Systemic lupus erythematosus
2-3:1	Myasthenia gravis Multiple sclerosis Rheumatoid arthritis
~ 1:1	Autoimmune hemolytic anemia Idiopathic thrombocytopenic purpura Type I diabetes Vitiligo Pemphigus
< 1:1	Goodpasture Ankylosing spondylitis



hyperthyroidism



hypothyroidism



pemphigus



vitiligo

autoimmune disease - multi organ involvement

Scleroderma

Armando Gabrielli, M.D., Enrico V. Avedimento, M.D., and Thomas Krieg, M.D.

The NEW ENGLAND JOURNAL of MEDICINE

Table 1. Clinical Findings in Patients with Scleroderma

Finding

Calcinosis

Raynaud's phenomenon

Articular involvement

Esophageal dysmotility

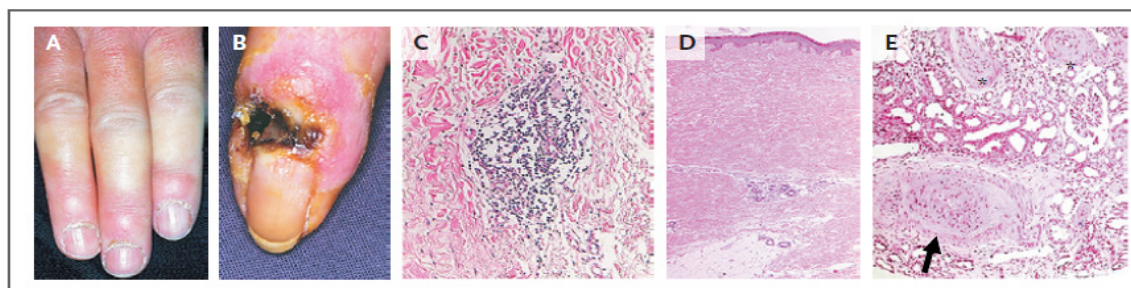
Lung fibrosis

Isolated pulmonary arterial hypertension

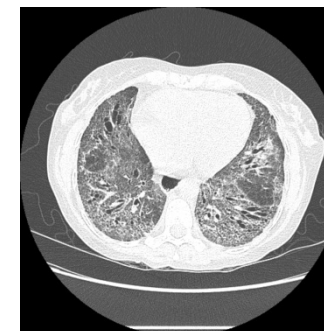
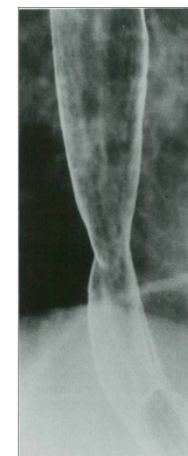
Heart involvement

Reduced LVEF

Renal crisis



- A hyperkeratosis & Raynaud's phenomenon
- B vasculitis with gangrene
- C vasculitis
- D collagen deposition
- E glomerulonephritis



autoimmune disease - aggregation - type 1 diabetes

type 1 diabetes

- 32% have antibodies to organs other than the pancreas
- 27% T1DM have another autoimmune disease
- 13% controls have autoimmune disease

- thyroid disease 15 - 30%
 - TPO Ab - thyroperoxidase antibodies
- coeliac disease 4 - 9%
 - TTG Ab - transglutaminase antibodies
- Addison's disease 0.5%
 - 21OH Ab - 21 hydroxylase antibodies

Autoimmune disorders at type 1 diabetes onset

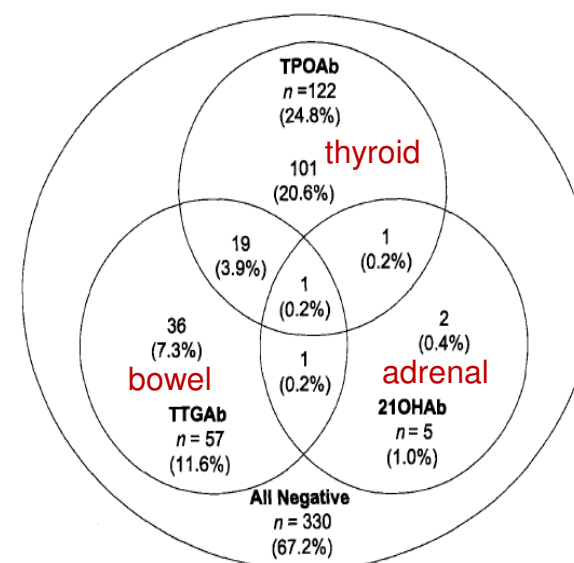


Figure 1—Frequency of nonislet, organ-specific autoantibodies is shown in 491 children with type 1 diabetes. Of these, 160 (32.6%) were positive for at least one nonislet, organ-specific autoantibody.

autoimmune disease - aggregation - primary biliary cirrhosis

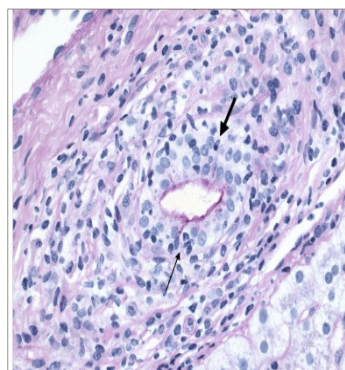
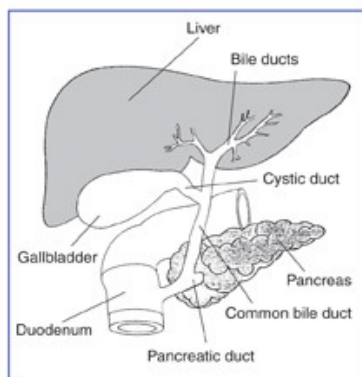
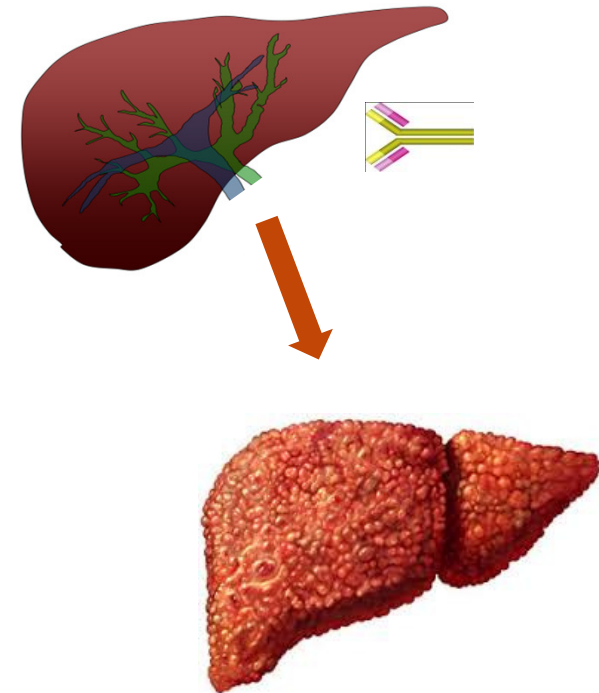
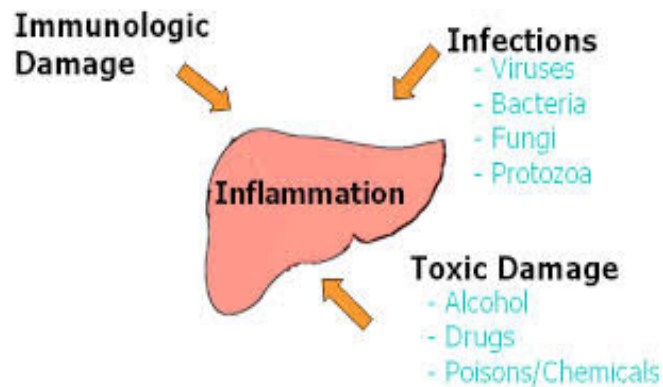


Table 4. Comorbidities (%) observed in previous studies and in our study on 1,032 US patients with PBC

	Previous studies	Gershwin et al. [8]
Sjögren's syndrome	75	10
Raynaud's syndrome	32	12
Autoimmune thyroid disease	11	9
Systemic sclerosis	12	2

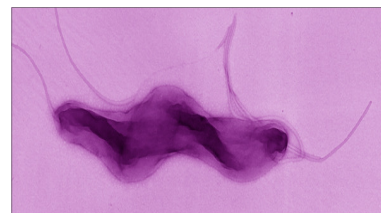
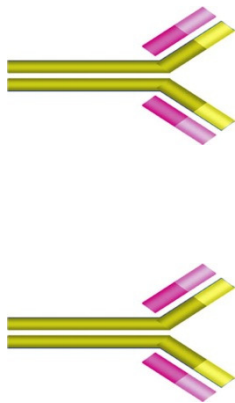
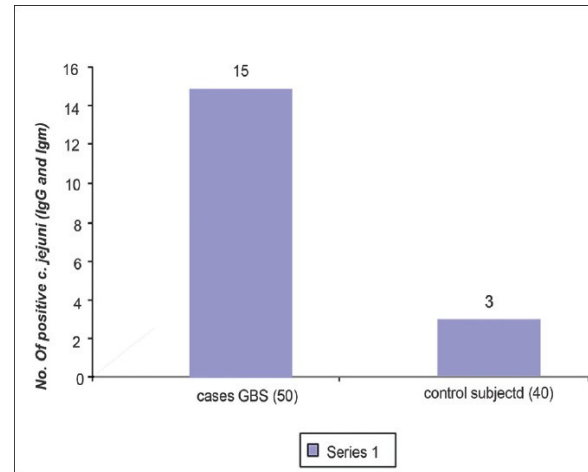
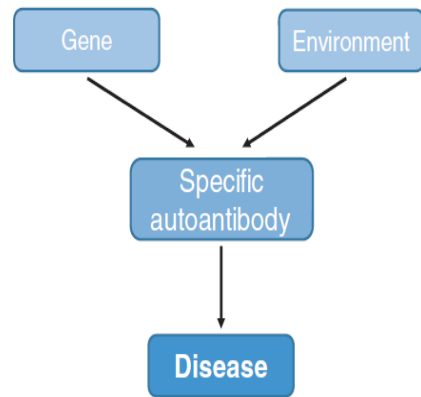


autoimmune disease - familial aggregation - immune hepatitis

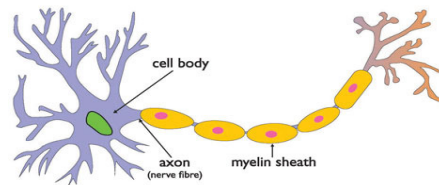


	OR
Family history of PBC	10.736
Family history of SLE	2.234
History of urinary tract infections	1.511
Ever smoked during life	1.569
Ever used hormonal replacement	1.548
Age at first pregnancy	0.9541

autoimmune disease - causation - Guillain Barré syndrome



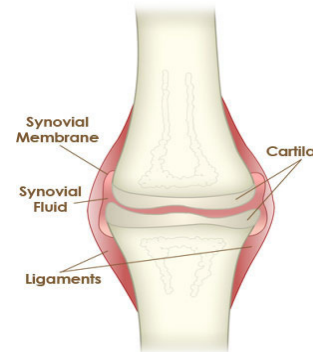
campylobacter jejuni



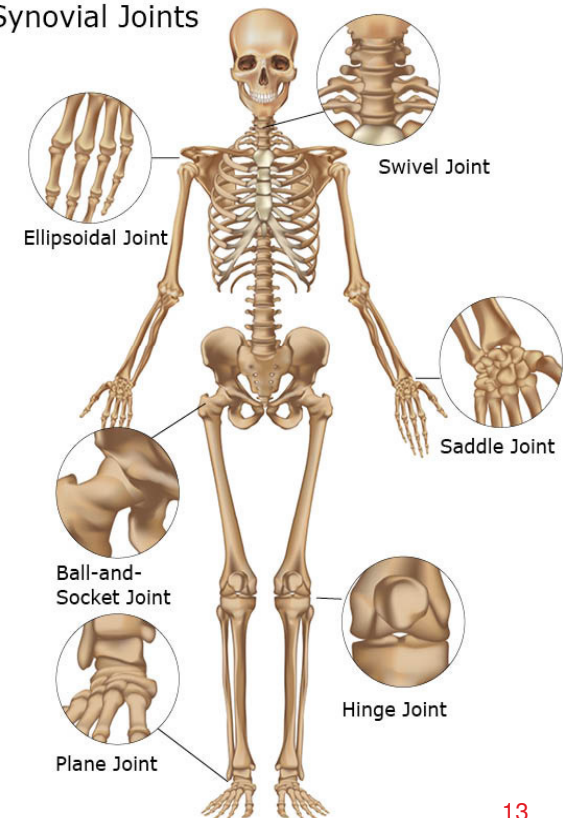
autoimmune rheumatic diseases

multisystem autoimmune diseases that have major effect on joints

- rheumatoid arthritis - RA
- systemic lupus erythematosus - SLE
- Sjögrens syndrome
- systemic sclerosis - scleroderma
- polymyositis & dermatomyositis
- systemic vasculitides



Synovial Joints



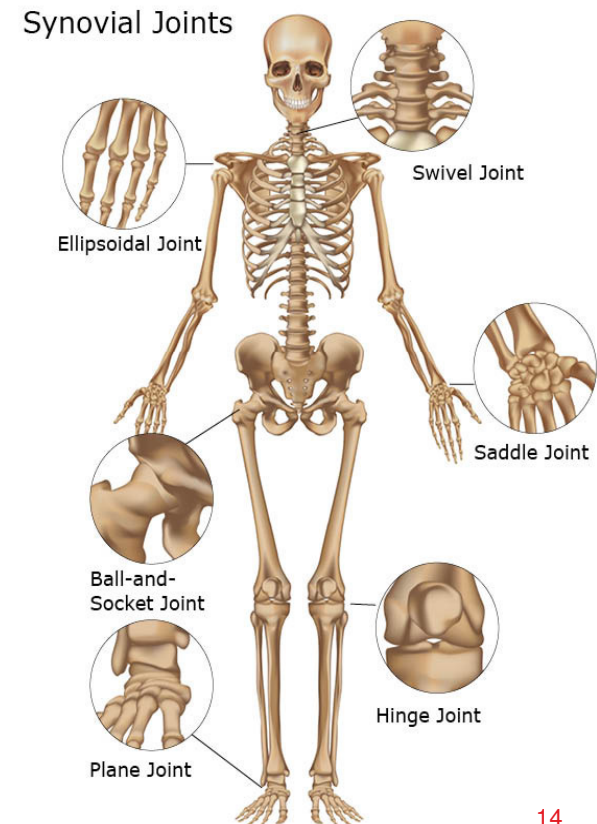
specific diagnosis may not be immediately clear

- rheumatic diseases share common clinical features
- may initially present without major joint manifestations
- constitutional symptoms may predominate
 - undifferentiated connective tissue disease
 - overlap syndromes
- autoantibody profiling may help in diagnosis

autoimmune rheumatic diseases - order of frequency

multisystem autoimmune diseases that have major effect on joints

- **Sjögrens syndrome**
 - prevalence 300 - 600:100,000
- **rheumatoid arthritis - RA**
 - incidence 5 - 50:100,000 annually
 - prevalence 1000:100,000 - 1% population
- **systemic lupus erythematosus - SLE**
 - incidence 1 - 10:100,000 annually
 - prevalence 20 - 200:100,000
 - more common in non Caucasians
- **systemic sclerosis - scleroderma**
 - incidence 0.1 - 12:100,000 annually
 - prevalence 1.0 - 50:100,000
- **polymyositis & dermatomyositis**
 - incidence 0.1 - 1:100,000 annually



rheumatoid arthritis

- 1% population 1x 5 - 50:100,000
- female predominance 3:1
- females have earlier onset
- frequently begins in childbearing years (40 - 70)
- multisystem disease with joint disease predominant
- early diagnosis is essential - challenging
- many syndromes mimic RA - viral arthritis
- joint damage is early
- bone erosion and joint deformity is irreversible
 - 30% have erosions at diagnosis
 - 70% have erosions at 2 years
- disease modifying anti rheumatic drugs DMARDs - highly effective
- delay in DMARDs > 3 months increases X-ray damage at 5 years
- specialist opinions ideal within 3 months - DMARDs within 3 months
- treatment - usually not curative & maintenance required
- treatment aims - remission of symptoms and return of joint function (50%)

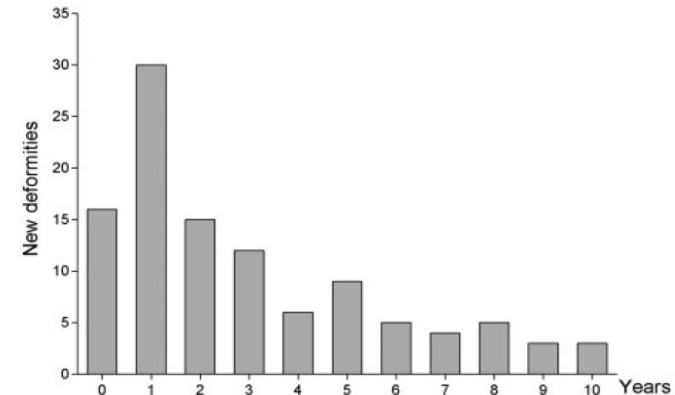
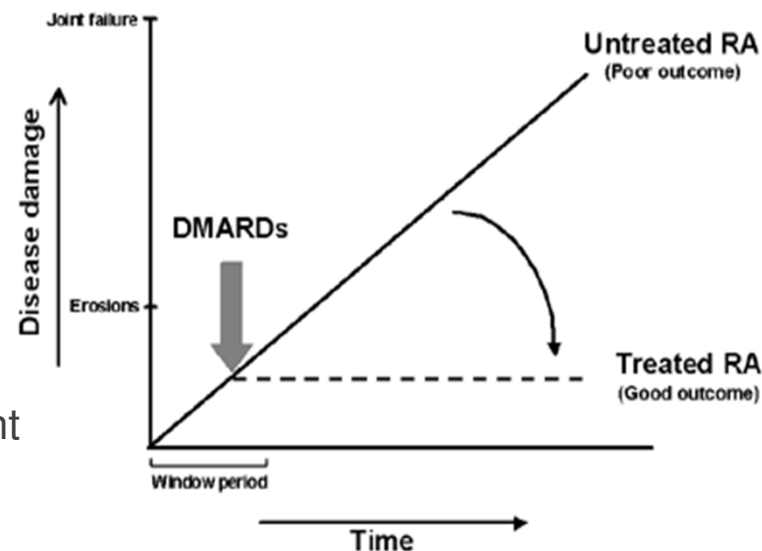


FIG. 1. The rate of primary hand deformities each year in patients with early RA followed for 10 years.



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predictors of medication free remission

- male
- non smoker
- mild disease at onset
- short disease duration at onset
- little X-ray damage at baseline
- negative RF and anti CCP

rheumatoid arthritis - arthritis in children

juvenile idiopathic arthritis - arthritis < age 16

- International League for Associations for Rheumatology - ILAR
- RF positive
 - adolescent girls
 - nodules in 33%
 - extra articular Δ is rare
 - behaves as adult RA
 - issues for bone growth



	Frequency*	Onset age	Sex ratio
Systemic arthritis	4-17%	Throughout childhood	F=M
Oligoarthritis	27-56%	Early childhood; peak at 2-4 years	F>>>M
Rheumatoid-factor-positive polyarthritis	2-7%	Late childhood or adolescence	F>>M
Rheumatoid-factor-negative polyarthritis	11-28%	Biphasic distribution; early peak at 2-4 years and later peak at 6-12 years	F>>M
Enthesitis-related arthritis	3-11%	Late childhood or adolescence	M>>F
Psoriatic arthritis	2-11%	Biphasic distribution; early peak at 2-4 years and later peak at 9-11 years	F>M
Undifferentiated arthritis	11-21%

*Reported frequencies refer to percentage of all juvenile idiopathic arthritis.

Table 1: Frequency, age at onset, and sex distribution of the International League of Associations for Rheumatology (ILAR) categories of juvenile idiopathic arthritis

Juvenile idiopathic arthritis

Ravelli, Angelo;Martini, Alberto
The Lancet; Mar 3-Mar 9, 2007; 369, 9563

rheumatoid arthritis - criteria for diagnosis - RF not mandatory

Conventional and new classification criteria for rheumatoid arthritis

ACR 1987 criteria 4:7		ACR/EULAR 2010 criteria 6:10
<ol style="list-style-type: none"> 1. Morning stiffness (at least 1h) 2. Arthritis of three or more joint areas 3. Arthritis of hand joints (≥ 1 swollen joints) 4. Symmetrical arthritis 5. Rheumatoid nodules 6. Serum rheumatoid factor 7. Radiographic changes (erosions) 	<p>} acute 6/52</p>	<ol style="list-style-type: none"> 1. Joint involvement (0-5) <ul style="list-style-type: none"> • One medium-to-large joint (0) • Two to ten medium-to-large joints (1) • One to three small joints (large joints not counted) (2) • Four to ten small joints (large joints not counted) (3) • More than ten joints (at least one small joint) (5) ← 2. Serology (0-3) <ul style="list-style-type: none"> • Negative RF and negative ACPA (0) • Low positive RF or low positive ACPA (2) ← • High positive RF or high positive ACPA (3) ← 3. Acute-phase reactants (0-1) <ul style="list-style-type: none"> • Normal CRP and normal ESR (0) • Abnormal CRP or abnormal ESR (1) 4. Duration of symptoms (0-1) <ul style="list-style-type: none"> • Less than 6 weeks (0) • 6 weeks or more (1)
Four of these seven criteria must be present. Criteria 1-4 must have been present for at least 6 weeks		Points are shown in parentheses. Cutpoint for rheumatoid arthritis 6 points or more. Patients can also be classified as having rheumatoid arthritis if they have: (a) typical erosions; (b) long-standing disease previously satisfying the classification criteria

Lancet 2010; 376: 1094-1108

rheumatoid arthritis - diagnosis & differential diagnosis

Panel: ACR criteria for rheumatoid arthritis¹ 1987 4:7

A patient is said to have rheumatoid arthritis if he or she meets at least four criteria.

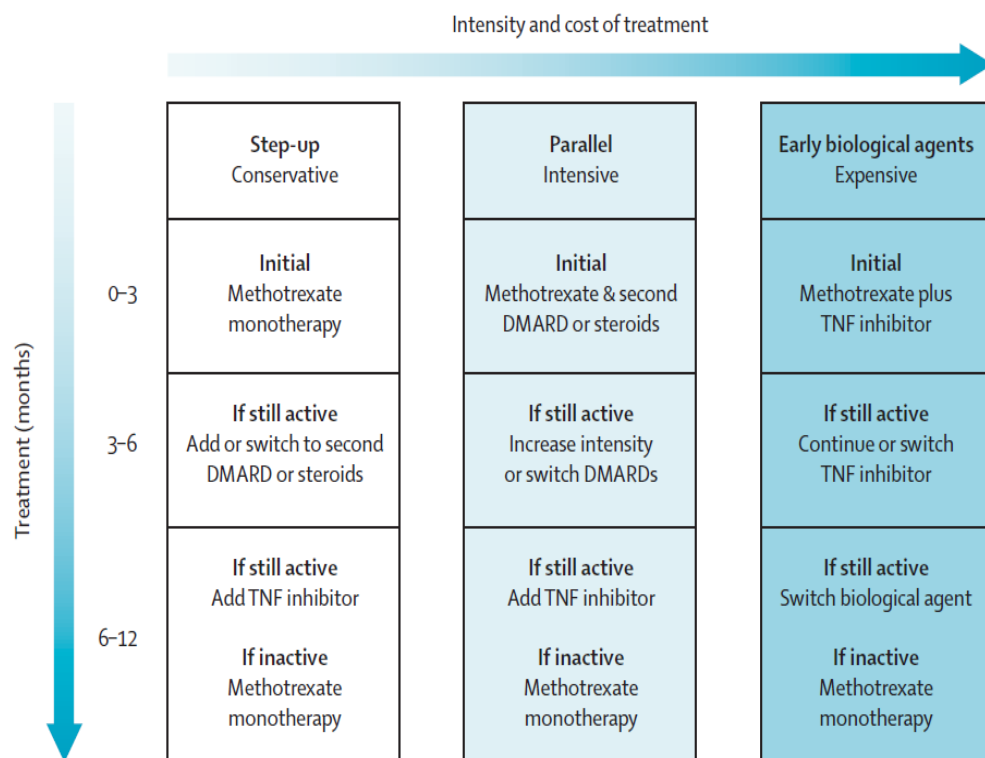
- 1 Morning stiffness lasting at least 1 h, present for at least 6 weeks
- 2 At least three joint areas simultaneously with soft-tissue swelling or fluid, for at least 6 weeks
- 3 At least one area swollen in a wrist, metacarpaophalangeal, or proximal interphalangeal joint, for at least 6 weeks
- 4 Simultaneous involvement of the same joint areas on both sides of the body, for at least 6 weeks
- 5 Subcutaneous nodules seen by a doctor
- 6 Positive rheumatoid factor
- 7 Radiographic changes on hand and wrist radiographs (erosions or unequivocal bony decalcification)

Table I. Differential diagnosis of rheumatoid arthritis

Crystalline arthropathy (gout, pseudogout or chronic pyrophosphate arthropathy)
Spondyloarthropathy
Polymyalgia rheumatica
Osteoarthritis
Remitting seronegative symmetrical synovitis with pitting oedema syndrome
Arthritis related to connective tissue disease or systemic vasculitis
Malignancy-related arthritis
Hypertrophic osteoarthropathy
Sarcoidosis
Infectious arthritis (hepatitis B and C, HIV and others)

rheumatoid arthritis - treatment

Treatment strategies in early active rheumatoid arthritis



Lancet 2010; 376: 1094-1108

traditional DMARDs

- methotrexate
- leflunomide
- sulfasalazine
- hydroxychloroquine
- gold
- cyclosporin

biological DMARDs

tumour necrosis factor TNF inhibitors

- adalimumab
- golimumab
- infliximab
- etanercept

interleukin 6 receptor blockers

- tocilizumab

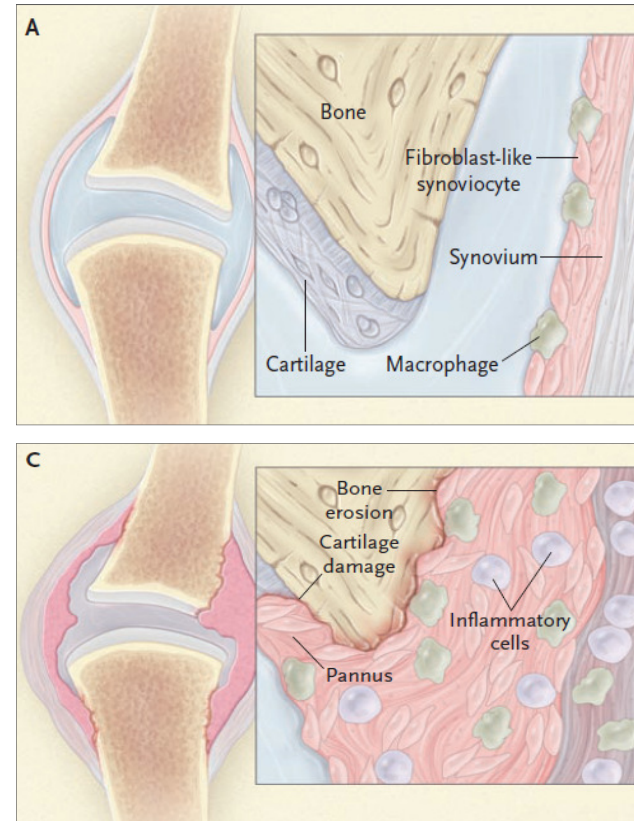
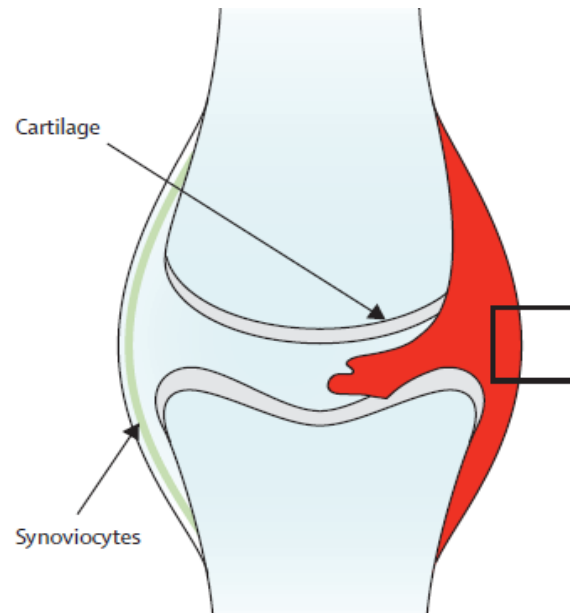
B cell inhibitors

- rituximab

T cell inhibitors

- abatacept

rheumatoid arthritis



Healthy

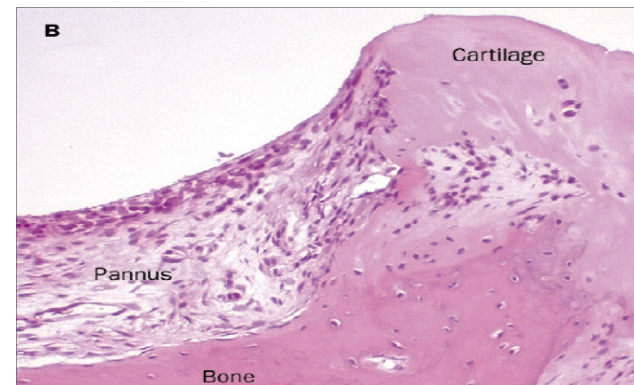
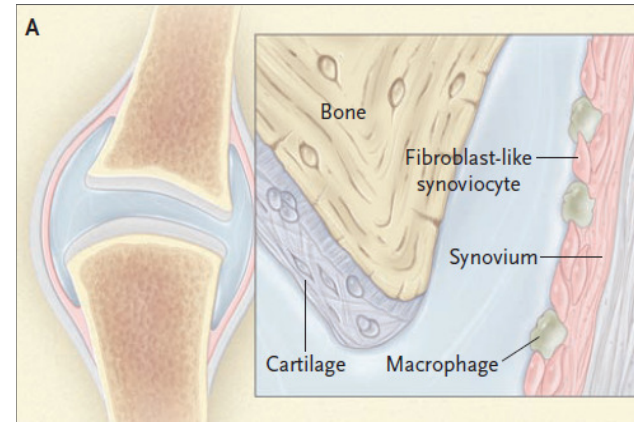
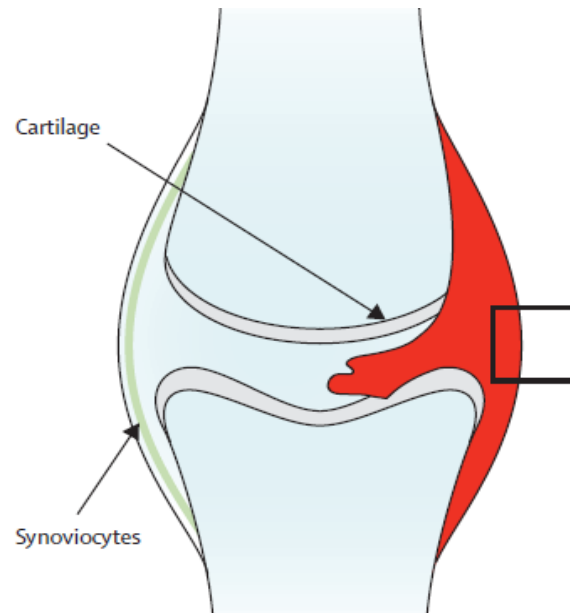
Undifferentiated arthritis

Early rheumatoid arthritis

Rheumatoid arthritis

ARA criteria

rheumatoid arthritis



Healthy

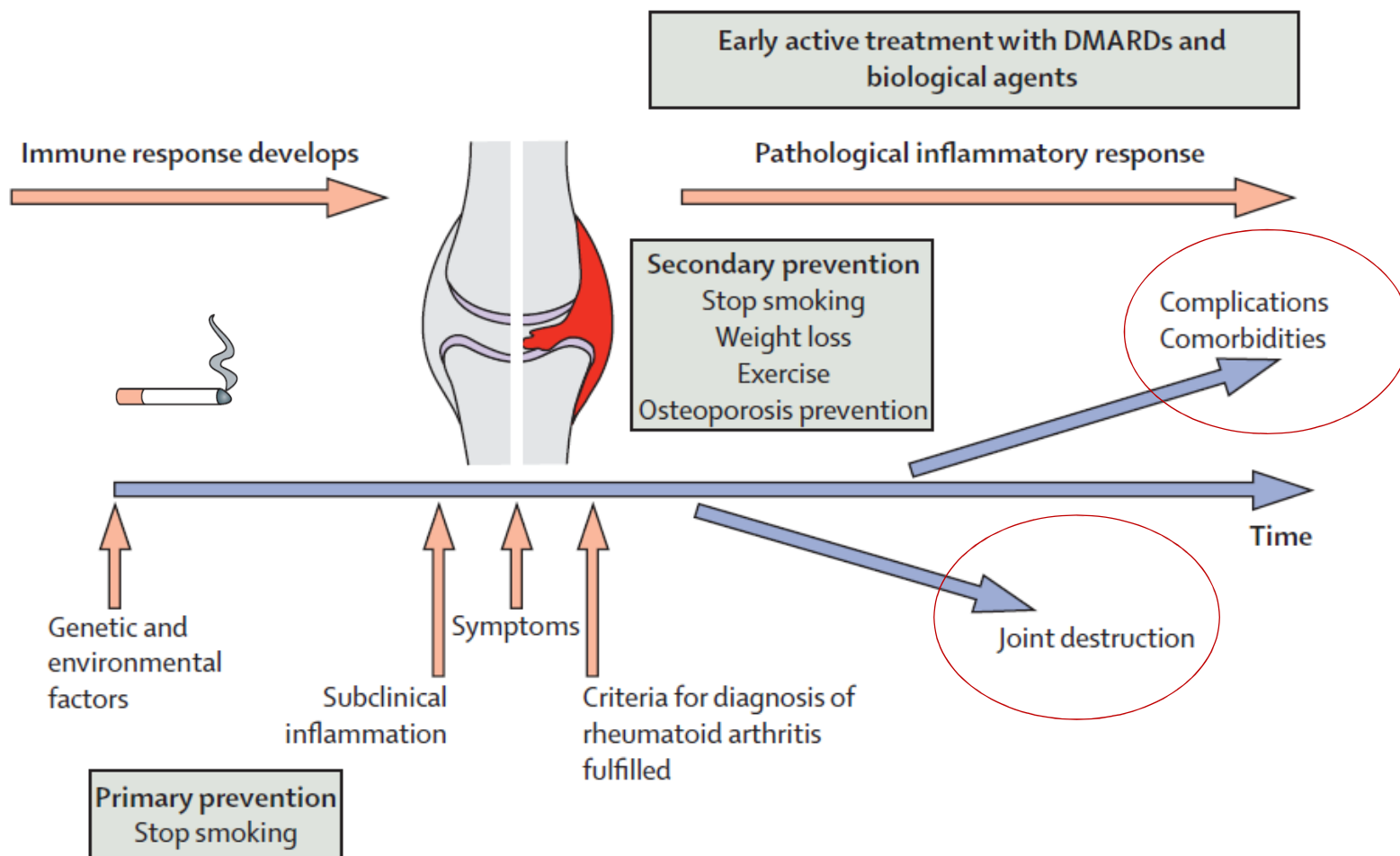
Undifferentiated arthritis

Early rheumatoid arthritis

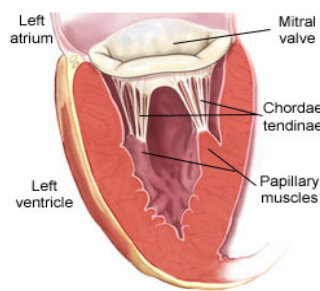
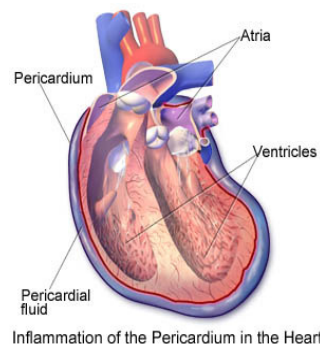
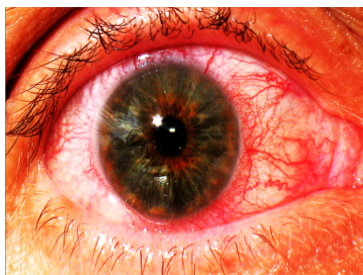
Rheumatoid arthritis

ARA criteria

rheumatoid arthritis



rheumatoid arthritis - clinical features - extra articular Δ



Panel 2: **Extra-articular involvement**

Organ system	Involvement
Skin	Rheumatoid nodules, vasculitis
Ocular	Keratoconjunctivitis sicca, iritis, episcleritis
Oral	Salivary inflammation (sicca symptoms)
Respiratory	Pulmonary fibrosis, pleural effusion, cricoarytenoid inflammation
Cardiac	Pericardial inflammation, valvular nodule formation, myocarditis
Neurological	Mononeuritis, nerve entrapment, cervical instability
Hepatic	Increased aminotransferase concentrations
Haematological	Anaemia, thrombocytosis, leucocytosis, lymphadenopathy Felty's syndrome: splenomegaly, thrombocytopenia
Vascular	Vasculitis

rheumatoid arthritis - clinical features - extra articular Δ

Extra-articular disease

- Nodules
- Pulmonary
 - Pulmonary nodules ←
 - Pleural effusion
 - Fibrosing alveolitis
- Ocular
 - Keratoconjunctivitis sicca
 - Episcleritis
 - Scleritis
- Vasculitis
 - Nail fold
 - Systemic
- Cardiac ←
 - Pericarditis
 - Pericardial effusion
 - Valvular heart disease
 - Conduction defects
- Neurological ←
 - Nerve entrapment
 - Cervical myelopathy
 - Peripheral neuropathy
 - Mononeuritis multiplex
- Cutaneous
 - Palmar erythema
 - Pyoderma gangrenosum
 - Vasculitic rashes
 - Leg ulceration
- Amyloidosis

Comorbidities*

Cardiovascular

- Myocardial infarction ←
- Heart failure ←
- Stroke
- Peripheral vascular disease
- Hypertension

Cancer

- Lymphoma and lymphoproliferative diseases ←
- Lung cancer
- Skin cancer

Infection

- General
- Bacterial

Other

- Depression ←
- Gastrointestinal disease
- Osteoporosis ←
- Psoriasis
- Renal disease

rheumatoid arthritis - domains of health

major criteria for assessment of disability

- pain
- function
- global health

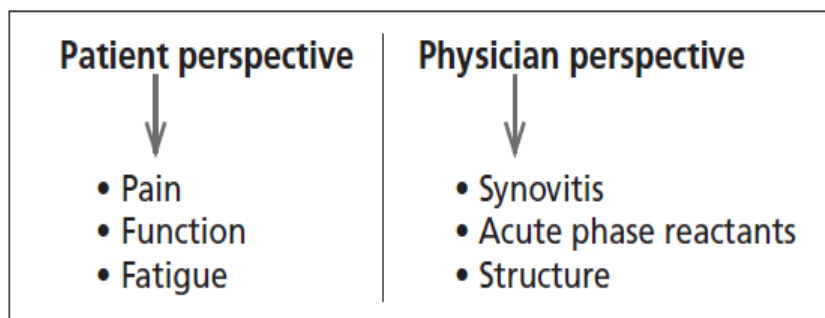
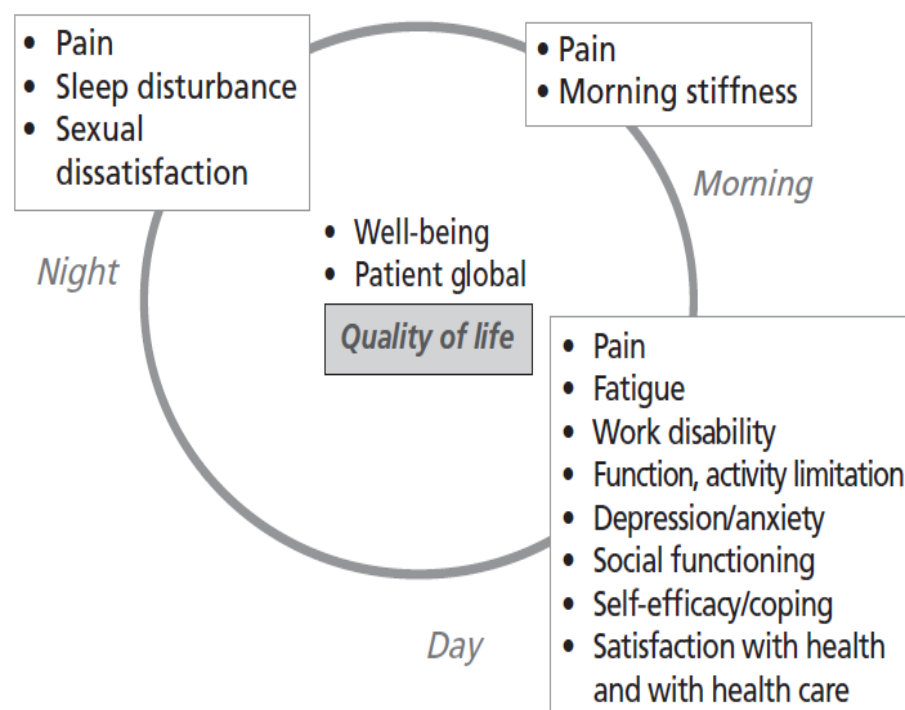


Illustration of the different perspectives in RA



Domains of health which are important in RA

rheumatoid arthritis - severity assessment

Panel: Assessments in rheumatoid arthritis

Disease activity

Core assessments

- Joint counts (tender and swollen joint counts)
- Global assessment (doctor and patient) and pain score
- Laboratory (erythrocyte sedimentation rate and C-reactive protein)
- Disability (eg, health assessment questionnaire)

Additional assessment

- Fatigue
- Radiological damage

Panel 3: Prognostic factors for severity


- Presence of rheumatoid factor
- Presence of HLA DR4 alleles
- Early development of joint erosions
- Increasing number of affected joints
- Early disability
- Older age at onset
- Fewer years of formal education
- Presence of extra-articular features

Lancet 2001; **358**: 903–11

rheumatoid arthritis - joint counts

Rheumatoid Arthritis Scoring Sheet

Read the instructions to the patient.
 "I am going to examine various joints for swelling and tenderness. Please say yes or no if there is tenderness when I press a specific joint."
 Examine each joint listed in order. Record a check if swelling or tenderness upon palpation is present. Total the number of swollen and tender joints.



RIGHT	SWOLLEN	TENDER	LEFT	SWOLLEN	TENDER
1. 1 st PIP	<input type="checkbox"/>	<input type="checkbox"/>	6. 1 st PIP	<input type="checkbox"/>	<input type="checkbox"/>
2. 2 nd PIP	<input type="checkbox"/>	<input type="checkbox"/>	7. 2 nd PIP	<input type="checkbox"/>	<input type="checkbox"/>
3. 3 rd PIP	<input type="checkbox"/>	<input type="checkbox"/>	8. 3 rd PIP	<input type="checkbox"/>	<input type="checkbox"/>
4. 4 th PIP	<input type="checkbox"/>	<input type="checkbox"/>	9. 4 th PIP	<input type="checkbox"/>	<input type="checkbox"/>
5. 5 th PIP	<input type="checkbox"/>	<input type="checkbox"/>	10. 5 th PIP	<input type="checkbox"/>	<input type="checkbox"/>
11. 1 st MCP	<input type="checkbox"/>	<input type="checkbox"/>	16. 1 st MCP	<input type="checkbox"/>	<input type="checkbox"/>
12. 2 nd MCP	<input type="checkbox"/>	<input type="checkbox"/>	17. 2 nd MCP	<input type="checkbox"/>	<input type="checkbox"/>
13. 3 rd MCP	<input type="checkbox"/>	<input type="checkbox"/>	18. 3 rd MCP	<input type="checkbox"/>	<input type="checkbox"/>
14. 4 th MCP	<input type="checkbox"/>	<input type="checkbox"/>	19. 4 th MCP	<input type="checkbox"/>	<input type="checkbox"/>
15. 5 th MCP	<input type="checkbox"/>	<input type="checkbox"/>	20. 5 th MCP	<input type="checkbox"/>	<input type="checkbox"/>
21. Wrist	<input type="checkbox"/>	<input type="checkbox"/>	22. Wrist	<input type="checkbox"/>	<input type="checkbox"/>
23. Elbow	<input type="checkbox"/>	<input type="checkbox"/>	24. Elbow	<input type="checkbox"/>	<input type="checkbox"/>
25. Shoulder	<input type="checkbox"/>	<input type="checkbox"/>	26. Shoulder	<input type="checkbox"/>	<input type="checkbox"/>
27. Knee	<input type="checkbox"/>	<input type="checkbox"/>	28. Knee	<input type="checkbox"/>	<input type="checkbox"/>
SUBTOTALS					
TOTAL SWOLLEN					
TOTAL TENDER					
TOTAL RA JOINT COUNT					

RHEUMATOID ARTHRITIS JOINT COUNT

Proximal interphalangeal (PIP) joints 1-10
 Metacarpophalangeal (MCP) joints 11-20
 Wrists 21-22
 Elbows 23-24
 Shoulders 25-26
 Knees 27-28

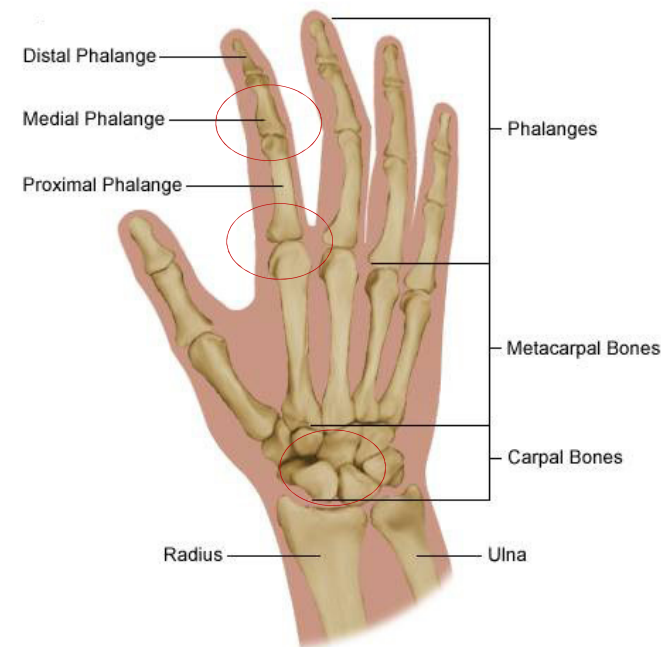


Figure 1 – To perform a standardized joint count for rheumatoid arthritis, record joint tenderness and swelling results on a scoring sheet. For each joint, enter a check mark for each yes response for swelling or tenderness on palpation. Calculate the numbers of swollen and tender joints independently and then add them together to determine the total score for the RA Joint Count.

rheumatoid arthritis - severity

RA severity dimensions

1. disease activity - potentially reversible
 - inflammation and pain
 - joint swelling
 - weight loss and anaemia
2. function - most have some impairment at some stage
 - ADLs
 - capacity for general tasks
 - employment
3. physical damage - irreversible joint damage
 - joint destruction - best assessed by X-Ray
 - joint deformity - best assessed by X-Ray
4. emotional issues

aggressive treat to target trial outcomes

- low disease activity state 50%
- remission 30%
- 15% of those in remission DMARD free
- 50% DMARD free remissions relapse

HAQ DI - health assessment questionnaire disability index RA

Please check (✓) the **one** best answer for your abilities over the **past week**.

At this moment, are you able to:	Without ANY difficulty	With SOME difficulty	With MUCH difficulty	UNABLE to do
DRESSING & GROOMING				
1. Dress yourself, including shoelaces and buttons? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Shampoo your hair? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ARISING				
3. Stand up from an armless straight chair? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Get in and out of bed? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EATING				
5. Cut your meat? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Lift a full cup or glass to your mouth? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Open a new milk carton? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WALKING				
8. Walk outdoors on flat ground? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Climb up five steps? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

→ Please check any **AIDS OR DEVICES** that you usually use for any of the above activities:

- | | | |
|--|---|-------------------------------------|
| <input type="checkbox"/> Devices used for dressing
(button hook, zipper pull, etc.) | <input type="checkbox"/> Built up or special utensils | <input type="checkbox"/> Crutches |
| <input type="checkbox"/> Special or built up chair | <input type="checkbox"/> Cane | <input type="checkbox"/> Wheelchair |
| | <input type="checkbox"/> Walker | |

Please check any categories for which you usually need **HELP FROM ANOTHER PERSON**:

- | | |
|--|----------------------------------|
| <input type="checkbox"/> Dressing and grooming | <input type="checkbox"/> Arising |
| <input type="checkbox"/> Eating | <input type="checkbox"/> Walking |

Please check (✓) the **one** best answer for your abilities over the **past week**.

At this moment, are you able to:	Without ANY difficulty	With SOME difficulty	With MUCH difficulty	UNABLE to do
HYGIENE				
10. Wash and dry your body? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Take a tub bath ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Get on and off the toilet? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REACH				
13. Reach and get down a 5-pound object (such as a bag of sugar) from just above your head? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Bend down to pick up clothing from the floor? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GRIP				
15. Open car doors? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Open previously opened jars? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Turn faucets on and off? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTIVITIES				
18. Run errands and shop? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Get in and out of a car? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Do chores such as vacuuming or yard work? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

→ Please check any **AIDS OR DEVICES** that you usually use for any of the above activities:

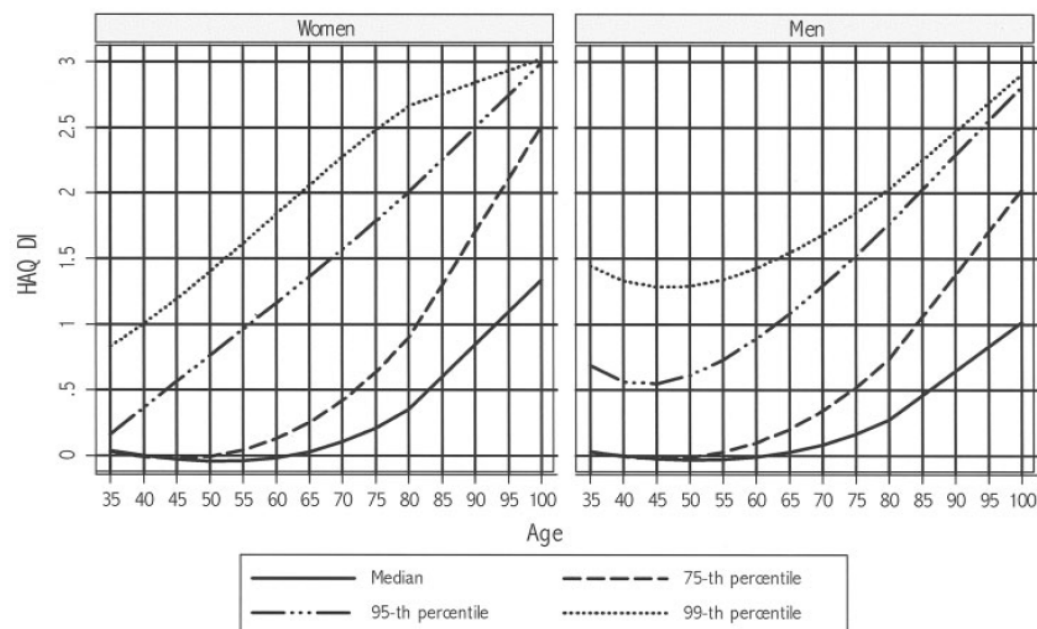
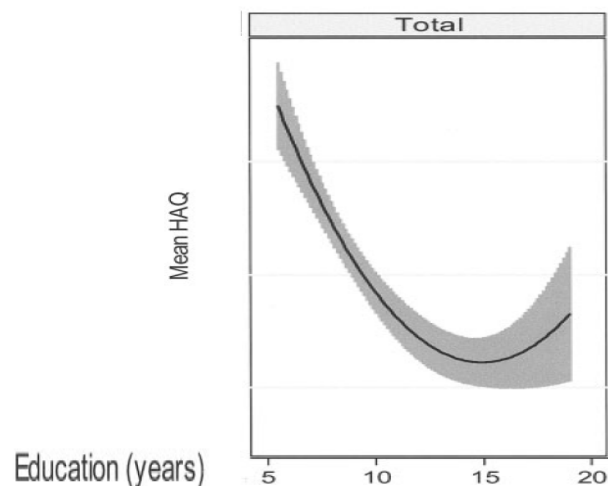
- | | | |
|---|---|---|
| <input type="checkbox"/> Raised toilet seat | <input type="checkbox"/> Bathtub bar | <input type="checkbox"/> Long-handled appliances for reach |
| <input type="checkbox"/> Bathtub seat | <input type="checkbox"/> Long-handled appliances
in the bathroom | <input type="checkbox"/> Jar opener (for jars previously
opened) |

Please check any categories for which you usually need **HELP FROM ANOTHER PERSON**:

- | | |
|----------------------------------|--|
| <input type="checkbox"/> Hygiene | <input type="checkbox"/> Gripping and opening things |
| <input type="checkbox"/> Reach | <input type="checkbox"/> Errands and chores |

HAQ DI - distribution in populations

- 33% populations have some functional disability
- 1:3 have disability in one ADL function
- prevalence increases with age
- disability curve flat to age 50
- prevalence
 - M > F in young
 - F > M in old
 - higher for BMI >30 - OR 2.4
 - higher for lower education

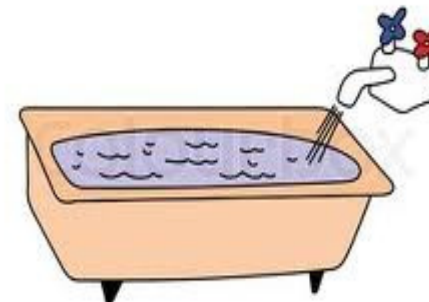
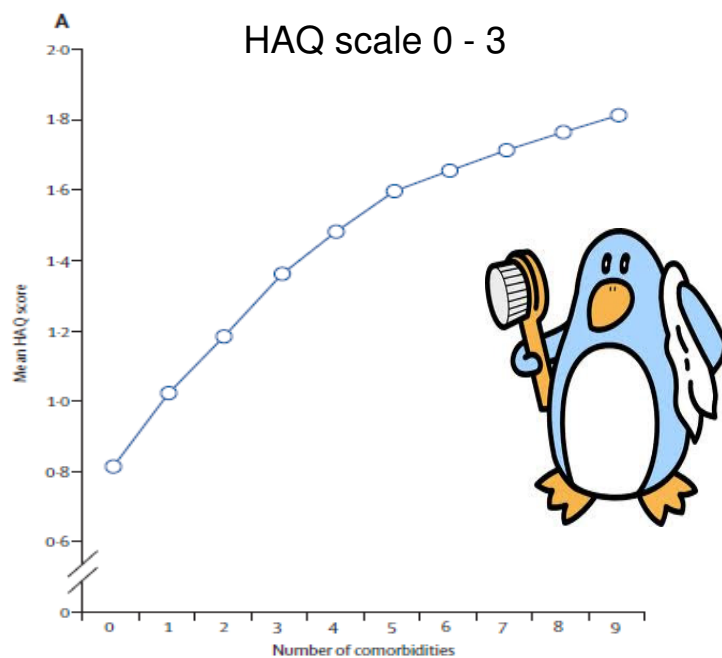


ARTHRITIS & RHEUMATISM

Vol. 50, No. 3, March 2004, pp 953–960

rheumatoid arthritis - disability - comorbidities

HEALTH ASSESSMENT QUESTIONNAIRE (HAQ)



rheumatoid arthritis - disability assessment

Rheumatoid Arthritis Severity Scale

Use the following scales to indicate the level of Rheumatoid Arthritis severity this patient has experienced in the last month. (If you haven't had contact with the patient in the last month, then consider their severity as of their last appointment with you.)

The literature shows three dimensions of severity: disease activity, functional impairment, and physical damage. For each, put a slash through the line to indicate this patient's level of RA severity compared with that of all other RA patients you have seen.

Disease Activity:

Taking into account joint counts and sedimentation rates, indicate your assessment of disease activity experienced by this patient.

No Disease Activity _____ Worst RA Disease Activity I have ever seen

Functional Impairment:

Taking into account your assessment of the patient's capacity for self-care, household tasks, social activity, work and physical dexterity, indicate the level of functional impairment experienced by this patient.

No Functional Impairment _____ Worst RA Functional Impairment I have ever seen

Physical Damage:

Taking into account your assessment of x-ray criteria (such as erosions), indicate the level of anatomic damage to the joints experienced by this patient.

No Physical Damage _____ Worst RA Physical Damage I have ever seen

© 1998 Wayne A. Bardwell, Ph.D.

Table 1

Advantages and disadvantages of quantitative radiographic measures in rheumatoid arthritis

Advantages	Disadvantages
Erosions are closest to pathognomonic sign in RA	Less sensitive to detect abnormalities than MRI, ultrasound
Reflect cumulative damage of disease	Radiographic damage has little prognostic value for work disability, death, or even joint replacement

Rheum Dis Clin N Am 35 (2009) 723–729

Rheumatology 2002;41:38–45

rheumatoid arthritis - disability assessment - RAID

EULAR

- European League Against Rheumatism

RAID

- Rheumatoid Arthritis Impact of Disease
- 7 domains assessed and weighted

1. pain	21 %
2. functional disability	16 %
3. fatigue	15 %
4. sleep	12 %
5. physical wellbeing	12 %
6. emotional wellbeing	12 %
7. coping	12 %

100 %

Table 2. The RAID score, a composite score to capture impact of RA (1)

RAID questionnaire

1. Pain
Circle the number that best describes the pain you felt due to your rheumatoid arthritis during the last week:

None	0	1	2	3	4	5	6	7	8	9	10	Extreme
------	---	---	---	---	---	---	---	---	---	---	----	---------

2. Functional disability assessment
Circle the number that best describes the difficulty you had in doing daily physical activities due to your rheumatoid arthritis during the last week.

No difficulty	0	1	2	3	4	5	6	7	8	9	10	Extreme difficulty
---------------	---	---	---	---	---	---	---	---	---	---	----	--------------------

3. Fatigue
Circle the number that best describes how much fatigue you felt due to your rheumatoid arthritis during the last week.

No fatigue	0	1	2	3	4	5	6	7	8	9	10	Totally exhausted
------------	---	---	---	---	---	---	---	---	---	---	----	-------------------

4. Sleep
Circle the number that best describes the sleep difficulties (i.e., resting at night) you felt due to your rheumatoid arthritis during the last week.

No difficulty	0	1	2	3	4	5	6	7	8	9	10	Extreme difficulty
---------------	---	---	---	---	---	---	---	---	---	---	----	--------------------

5. Physical well-being
Considering your arthritis overall, how would you rate your level of physical well being during the past week? Circle the number that best describes your level of physical well-being.

Very good	0	1	2	3	4	5	6	7	8	9	10	Very bad
-----------	---	---	---	---	---	---	---	---	---	---	----	----------

6. Emotional well-being
Considering your arthritis overall, how would you rate your level of emotional well being during the past week? Circle the number that best describes your level of emotional well-being.

Very good	0	1	2	3	4	5	6	7	8	9	10	Very bad
-----------	---	---	---	---	---	---	---	---	---	---	----	----------

7. Coping
Considering your arthritis overall, how well did you cope (manage, deal, make do) with your disease during the last week?

Very well	0	1	2	3	4	5	6	7	8	9	10	Very poorly
-----------	---	---	---	---	---	---	---	---	---	---	----	-------------

RAID SCORING AND CALCULATION RULES

The RAID is calculated based on 7 Numerical rating scales (NRS) questions. Each NRS is assessed as a number between 0 and 10. The 7 NRS correspond to pain, function, fatigue, sleep, emotional well-being, physical well-being, and coping/self-efficacy.

1. Calculation
RAID final value =
(pain NRS value (range 0-10) x 0.21) + (function NRS value (range 0-10) x 0.16) + (fatigue NRS value (range 0-10) x 0.15) + (phys well being NRS value (range 0-10) x 0.12) + (sleep NRS value (range 0-10) x 0.12) + (emotional well being NRS value (range 0-10) x 0.12) + (coping NRS value (range 0-10) x 0.12).
Thus, the range of the final RAID value is 0-10 where higher figures indicate worse status

rheumatoid arthritis - disability assessment - RAID

EULAR

- European League Against Rheumatism

RAID

- Rheumatoid Arthritis Impact of Disease
- 7 domains assessed and weighted
- each domain scored out of 10

1. pain	0 - 10	x 0.21
2. functional disability	0 - 10	x 0.16
3. fatigue	0 - 10	x 0.15
4. sleep	0 - 10	x 0.12
5. physical wellbeing	0 - 10	x 0.12
6. emotional wellbeing	0 - 10	x 0.12
7. coping	0 - 10	x 0.12

- RAID score

0 - 10

Table 2. The RAID score, a composite score to capture impact of RA (1)

RAID questionnaire

1. Pain
Circle the number that best describes the pain you felt due to your rheumatoid arthritis during the last week:

None	0	1	2	3	4	5	6	7	8	9	10	Extreme
------	---	---	---	---	---	---	---	---	---	---	----	---------

2. Functional disability assessment
Circle the number that best describes the difficulty you had in doing daily physical activities due to your rheumatoid arthritis during the last week.

No difficulty	0	1	2	3	4	5	6	7	8	9	10	Extreme difficulty
---------------	---	---	---	---	---	---	---	---	---	---	----	--------------------

3. Fatigue
Circle the number that best describes how much fatigue you felt due to your rheumatoid arthritis during the last week.

No fatigue	0	1	2	3	4	5	6	7	8	9	10	Totally exhausted
------------	---	---	---	---	---	---	---	---	---	---	----	-------------------

4. Sleep
Circle the number that best describes the sleep difficulties (i.e., resting at night) you felt due to your rheumatoid arthritis during the last week.

No difficulty	0	1	2	3	4	5	6	7	8	9	10	Extreme difficulty
---------------	---	---	---	---	---	---	---	---	---	---	----	--------------------

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-----------	---	---	---	---	---	---	---	---	---	---	----	----------

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Considering your arthritis overall, how would you rate your level of emotional well being during the past week? Circle the number that best describes your level of emotional well-being.

Very good	0	1	2	3	4	5	6	7	8	9	10	Very bad
-----------	---	---	---	---	---	---	---	---	---	---	----	----------

7. Coping
Considering your arthritis overall, how well did you cope (manage, deal, make do) with your disease during the last week?

Very well	0	1	2	3	4	5	6	7	8	9	10	Very poorly
-----------	---	---	---	---	---	---	---	---	---	---	----	-------------

RAID SCORING AND CALCULATION RULES

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Thus, the range of the final RAID value is 0-10 where higher figures indicate worse status

rheumatoid arthritis - depression & anxiety

Singaporean patients with rheumatoid arthritis

Table 1 Demographic features, clinical characteristics and psychosocial profiles of patients with rheumatoid arthritis

Feature	Mean \pm SD (%)	
Age (years)	53.66 \pm 13.57	
Sex (female)	75 (75)	
Ethnicity		
Chinese	65 (65)	
Malay	17 (17)	
Indian	16 (16)	
Others	2 (2)	
Depression		
≥ 8	15 (15)	←
< 8	85 (85)	
Anxiety		
≥ 8	26 (26)	←
< 8	74 (74)	

HADS
Hospital Anxiety & Depression Scale

- 0 - 7 normal
- 8 - 11 mild
- 11 - 14 moderate
- 15 - 21 severe

rheumatoid arthritis - blood tests

- antibodies
- inflammatory markers

Table 1
Percentage of patients with rheumatoid arthritis who have abnormal laboratory tests

Test	Percentage of Rheumatoid Arthritis Patients with Abnormal Test Result (%)
Rheumatoid factor ^a	69
Anti-CCP antibodies ^a	67
ESR ^b	55
CRP ^b	56

rheumatoid arthritis - rheumatoid factor (1)

- first autoantibody detected in RA
- antibody directed against immunoglobulins - IgG IgA IgG
- RF is not a requisite for diagnosis of RA
- RF is not 100% sensitive for RA
 - 70% positive at presentation
 - 70 - 90% prevalence
- RF is not 100% specific for RA
 - 5 - 10% normal people
 - common in other diseases
- RF is not mandated for RA diagnosis
- RF may predate arthritis - prevalence 20 - 30% 1.5 years before onset

Panel: ACR criteria for rheumatoid arthritis¹

A patient is said to have rheumatoid arthritis if he or she meets at least four criteria.

- 1 Morning stiffness lasting at least 1 h, present for at least 6 weeks
- 2 At least three joint areas simultaneously with soft-tissue swelling or fluid, for at least 6 weeks
- 3 At least one area swollen in a wrist, metacarpaophalangeal, or proximal interphalangeal joint, for at least 6 weeks
- 4 Simultaneous involvement of the same joint areas on both sides of the body, for at least 6 weeks
- 5 Subcutaneous nodules seen by a doctor
- 6 Positive rheumatoid factor
- 7 Radiographic changes on hand and wrist radiographs (erosions or unequivocal bony decalcification)

Table 1

Percentage of patients with rheumatoid arthritis who have abnormal laboratory tests

Test	Percentage of Rheumatoid Arthritis Patients with Abnormal Test Result (%)
Rheumatoid factor ^a	69
Anti-CCP antibodies ^a	67
ESR ^b	55
CRP ^b	56

Rheum Dis Clin N Am 35 (2009) 687–697

rheumatoid arthritis - rheumatoid factor (2)

Table 2. Frequency of rheumatoid factor in a variety of diseases

Disease	Frequency of occurrence (%)
Arthritis	
Rheumatoid arthritis	60–80
Juvenile chronic arthritis	15
Psoriatic arthritis	<15
Reactive arthritis	<5
Connective tissue diseases	
Primary Sjögren syndrome	70 60 - 80%
Systemic lupus erythematosus	30
Mixed connective tissue disease	25
Polymyositis/dermatomyositis	20
Progressive scleroderma	20

- 10 - 20% people over 65
- 20% HBV carriers
- RF contributes to host defence in infection

Table 2. Frequency of rheumatoid factor in a variety of diseases

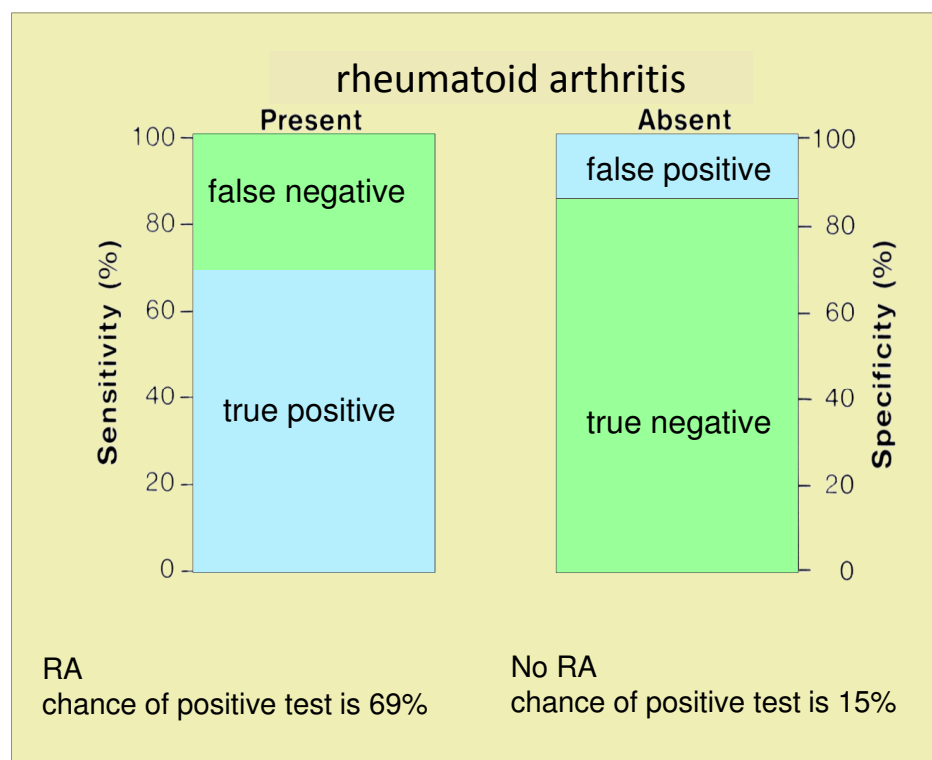
Disease	Frequency of occurrence (%)
Infections	
Bacterial	
Subacute bacterial endocarditis	40
Tuberculosis	15
Syphilis (primary-tertiary)	8–37
<i>Chlamydia pneumoniae</i> infection	
<i>Klebsiella pneumoniae</i> infection	
Borreliosis	
Viral	
Infectious hepatitis (A, B, C)	25
Epstein-Barr virus and cytomegalovirus infections	20
Coxsackie B	15
Herpes virus infections	10–15
Dengue	10
HIV infection	10–20
Measles	8–15
Parvovirus infection	10
Rubella	15
Parasitic	
Chagas	15–25
Malaria	15–18
Onchocerciasis	10
Toxoplasmosis	10–12
Other diseases	
Cryoglobulinemia	70
Waldenström macroglobulinemia	
Liver cirrhosis	25
Chronic interstitial lung diseases	25

rheumatoid arthritis - rheumatoid factor (3)

- RF sensitivity 69%
- RF specificity 85%

Meta-analysis: Diagnostic Accuracy of Anti-Cyclic Citrullinated Peptide Antibody and Rheumatoid Factor for Rheumatoid Arthritis

Ann Intern Med. 2007;146:797-808.



rheumatoid arthritis - rheumatoid factor (4)

- RF sensitivity 69%
- RF specificity 85%

anti citrullinated peptide antibodies

- anti-CCP / ACPA
- sensitivity 67%
- specificity 95% - highly specific
- better specificity → a better diagnostic test
- better predictor of aggression and erosive Δ (?)

Although most, but not all, ACPA-positive patients are also positive for rheumatoid factor, ACPA seem more specific and sensitive for diagnosis and seem to be better predictors of poor prognostic features such as progressive joint destruction.¹⁸

Rheumatoid arthritis

David L Scott, Frederick Wolfe, Tom WJ Huizinga

antibodies in RF - clinical practice

- measure both RF and anti-CCP → allows better diagnostic utility if both positive
- RF is part of ACR criteria for diagnosis
- both correlate with aggression of disease and bone damage
- reduction of RF and anti-CCP linked to reduction in disease activity
- full remission and drug free possible - 15%

rheumatoid arthritis - rheumatoid factor (5)

Radiographic progression in rheumatoid factor (RF) positive and negative patients - joint progression by RF at baseline

	RF negative (≤ 20 U/ml)	RF positives (> 20 U/m)
%	18.0%	82.0%
% Progressors	29.0%	56.9%
% Rapid progressors	8.9%	21.0%
Δ ATT joint score	1.03	3.23
Δ Joint space narrowing score	0.38	1.02
Δ Erosion score	0.65	2.21

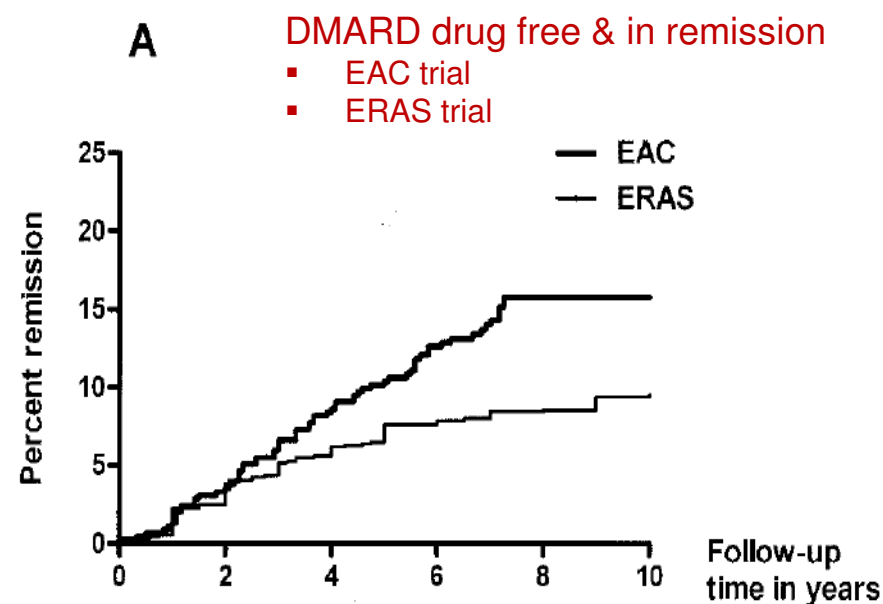
rheumatoid arthritis - rheumatoid factor (6)

Radiographic progression in rheumatoid factor (RF) positive and negative patients - joint progression by RF at baseline

	RF negative (≤ 20 U/ml)	RF positives (> 20 U/m)	RF high positive (> 160.5)
%	18.0%	82.0%	20.0%
% Progressors	29.0%	56.9%	60.4%
% Rapid progressors	8.9%	21.0%	22.5%
Δ ATT joint score	1.03	3.23	3.58
Δ Joint space narrowing score	0.38	1.02	1.22
Δ Erosion score	0.65	2.21	2.36

rheumatoid arthritis - who will do well (1)

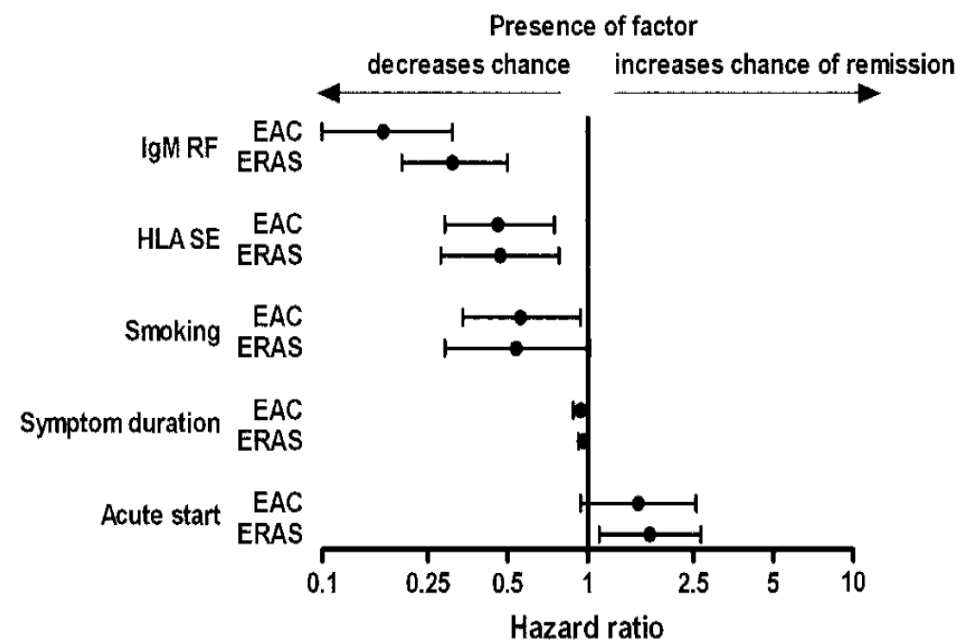
- non smokers
- acute start of symptoms in small joints
- early treatment
- RF negative
- anti - CCP negative
- fall in RF & anti - CCP with treatment
- no radiographic damage



ARTHRITIS & RHEUMATISM
Vol. 60, No. 8, August 2009, pp 2262-2271

rheumatoid arthritis - who will do well (2)

- non smokers
- acute start of symptoms in small joints
- early treatment
- RF negative
- anti - CCP negative
- fall in RF & anti - CCP with treatment
- no radiographic damage



ARTHRITIS & RHEUMATISM
Vol. 60, No. 8, August 2009, pp 2262-2271

rheumatoid arthritis - who will do well (3)

ERAS British Early Rheumatoid Arthritis Study	Remission (n = 84)	No remission (n = 811)	HR for response
Smoking, no. (%)	13 (28)	268 (42)	0.54
Acute start of symptoms, no. (%)	51 (61)	383 (48)	1.71
Start of symptoms in small joints, no. (%)	25 (30)	204 (25)	1.27
ESR, mean \pm SD mm/hour [†]	36 \pm 30	40 \pm 27	0.99
IgM-RF positive, no. (%)	29 (36)	520 (66)	0.31

rheumatoid arthritis - underwriting perspective

- individual consideration - many variables
- decline systemic disease

Severity	Criteria	life
Mild	Little or no disease activity, peripheral joints only, no disability, rheumatoid factor (RF) negative, no extra-articular involvement.	+50
Moderate	Extensive joint involvement, with relapsing and remitting symptoms and disease activity, some limitation of movement, moderately raised RF titre, eye disorders, neuropathy, borderline anemia.	+100
Severe	Marked disease activity with frequent recurrences or prolonged attacks, high RF titre, other possible systemic manifestations including cardiomyopathy, rheumatoid lung, amyloidosis or valvular heart disease.	+150 - decline

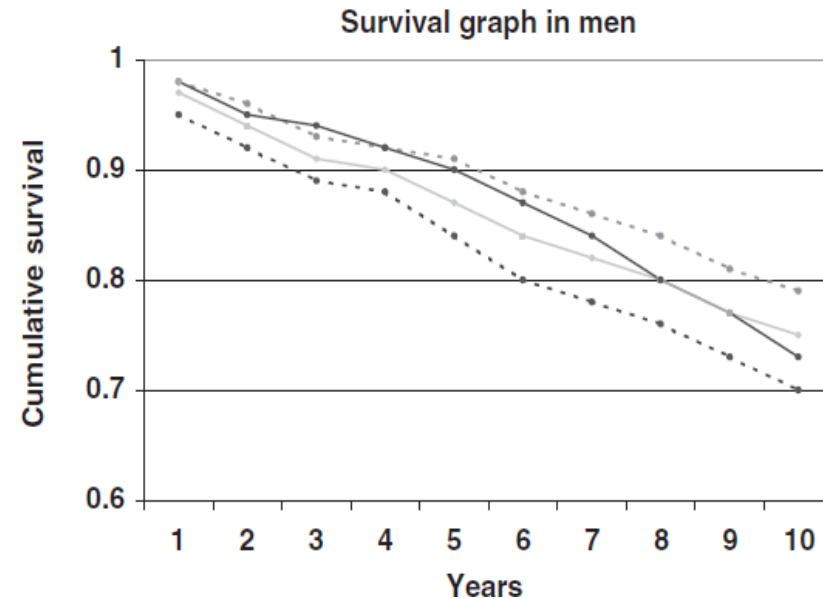
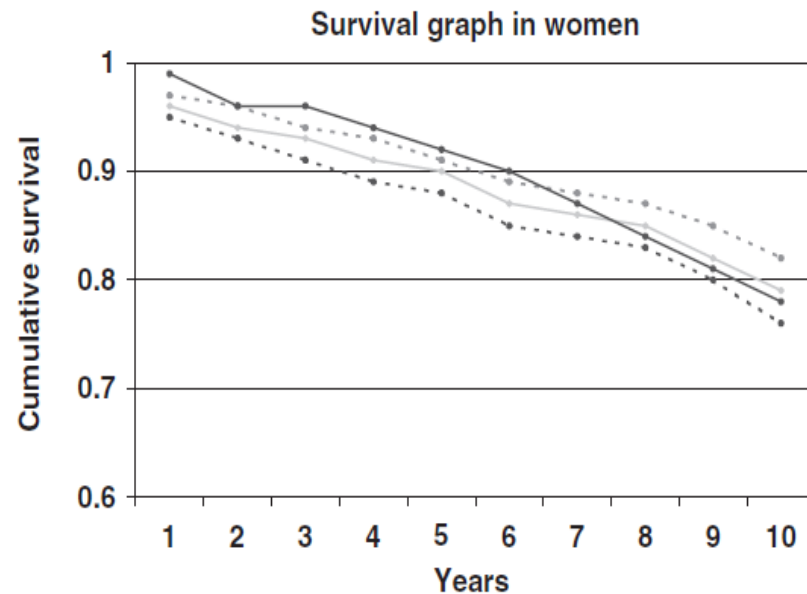
rheumatoid arthritis - underwriting perspective

- individual consideration - many variables
- decline systemic disease

Severity	Criteria	critical illness
Mild	Little or no disease activity, peripheral joints only, no disability, rheumatoid factor (RF) negative, no extra-articular involvement.	+50 & exclude
Moderate	Extensive joint involvement, with relapsing and remitting symptoms and disease activity, some limitation of movement, moderately raised RF titre, eye disorders, neuropathy, borderline anemia.	+150 & exclude
Severe	Marked disease activity with frequent recurrences or prolonged attacks, high RF titre, other possible systemic manifestations including cardiomyopathy, rheumatoid lung, amyloidosis or valvular heart disease.	decline

rheumatoid arthritis - mortality (1)

Mortality in rheumatoid arthritis Rheumatology 2007;46:350-357



- 1,400 RA
- 18 year follow up
- age at presentation 55
- SMR 1.27
- excess mortality in early years

rheumatoid arthritis - mortality (2)

Mortality in rheumatoid arthritis Rheumatology 2007;46:350–357

TABLE 2. Main causes of death ($n=459$) as broad categories

	ICD 10	ERAS	expected	SMR
Cardiovascular	100–152	142 (31%)	95.4	149
Cancers				
Solid tumours	C00–C97	110 (20%)	97.4	113
Neoplasia immune system ^a	C81–C96	17 (4%)	7.0	244
Respiratory	J00–J99	101 (22%)	26.5	188
Cerebrovascular	160–169	48 (10%)	43.7	110
Septicaemia	A00–B99	21 (5%)	3.1	682
Gastrointestinal	K00–K93	14 (3%)	16.3	86
Miscellaneous		13 (3%)		
Renal failure	N17–N19	8 (2%)	2.3	350

- 1,400 RA
- 18 year follow up
- age at presentation 55
- SMR 1.27
- excess mortality in early years

rheumatoid arthritis - mortality (3)

reduced LE

- 10 years men
- 11 years women

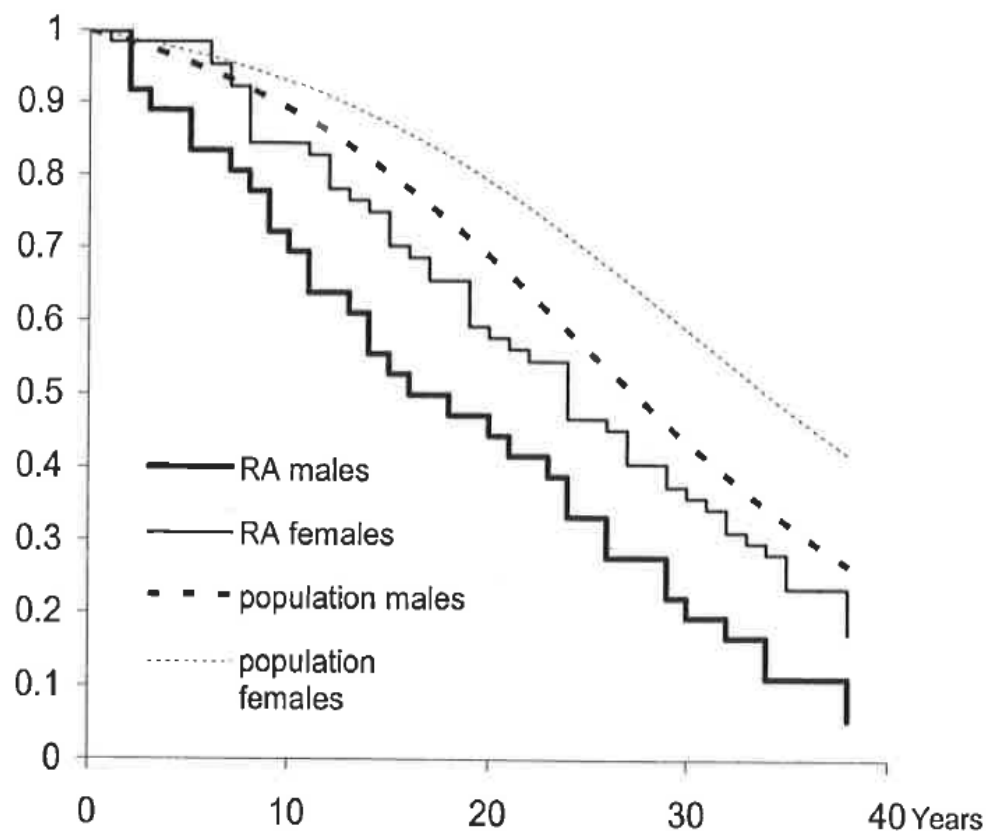


Figure 1. Survival curves for the subjects with rheumatoid arthritis and the general population in Bath over the period of the study, divided by sex.

rheumatoid arthritis - risks for mortality at diagnosis

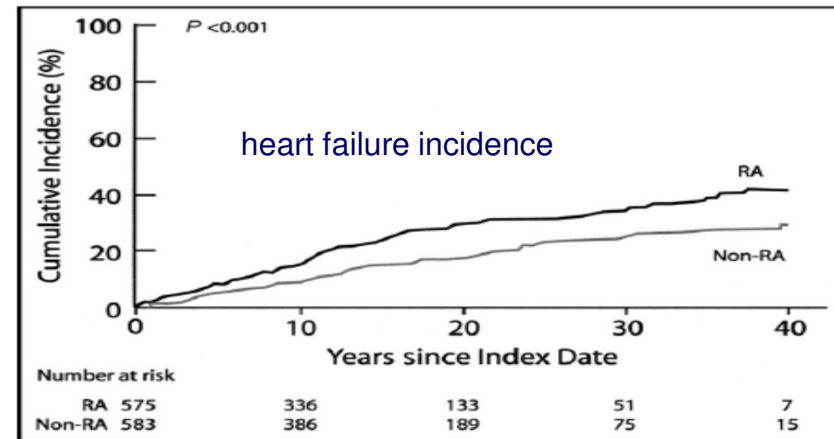
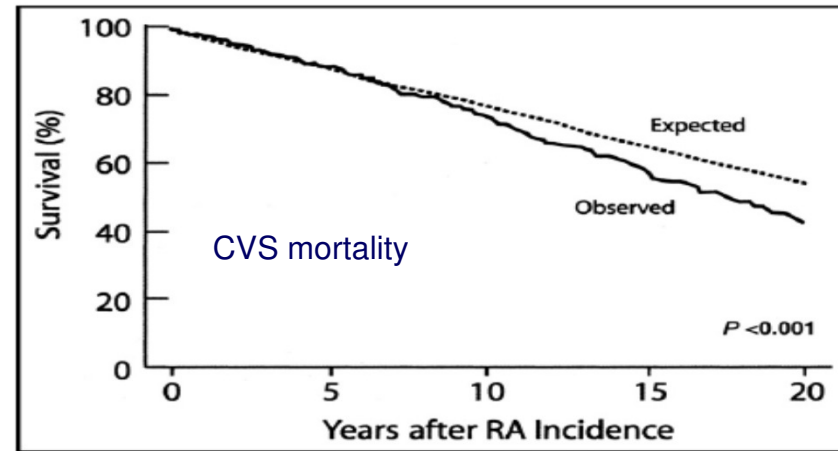
Mortality in rheumatoid arthritis Rheumatology 2007;46:350–357

		Status	
	Total	Alive	Deceased
	1429 (100%)	970 (68%)	459 (32%)
→ Gender			
Men	483 (34%)	293 (61%)	190 (39%)
Women	946 (66%)	677 (72%)	269 (28%)
ACR criteria			
<4	431 (30%)	315 (73%)	116 (27%)
≥4	998 (70%)	655 (66%)	343 (34%)
Nodules			
Absent	1270 (89%)	874 (69%)	396 (31%)
Present	159 (11%)	96 (60%)	63 (40%)
→ X-rays hands/feet			
no erosions	1039 (74%)	748 (72%)	291 (28%)
erosive	363 (26%)	208 (57%)	155 (43%)
→ Rheumatoid factor			
–ve	536 (38%)	369 (69%)	167 (31%)
+ve	888 (62%)	598 (67%)	290 (33%)
→ Functional grade			
I	458 (32%)	343 (75%)	115 (25%)
II	832 (58%)	559 (67%)	273 (33%)
III	139 (10%)	68 (49%)	71 (51%)
→ Extra-articular RA			
None	1171 (82%)	825 (70%)	346 (30%)
≥1	258 (18%)	145 (56%)	113 (44%)
→ Major comorbidity			
None	929 (65%)	679 (73%)	250 (27%)
≥1	491 (35%)	285 (58%)	206 (42%)
→ HAQ (0–3)		1 (0.5–1.6)	1.3 (0.8–1.9)
→ ESR (0–125 mm/h)		33 (16–57)	47 (26–75)

- 1,400 RA
- 18 year follow up
- age at presentation 55
- SMR 1.27
- excess mortality in early years

rheumatoid arthritis - mortality and critical events

- LE shortened 3 - 18 years (5 - 15 years)
- excess mortality after 8 - 10 years
- most extra mortality is vascular
- SMR for CVS death 1.4 M & 1.5 F
- HR for MI 2.13
- HR for heart failure 1.8 - 2.6
- HR for CCF death vs no RA 2.0
- SIR lymphoma 2.0
- possible excess leukaemia
- SIR other cancers 0.95



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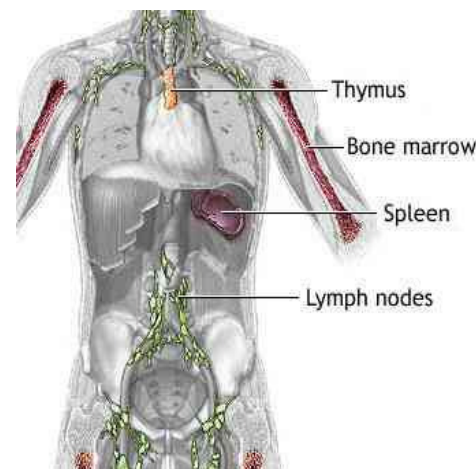


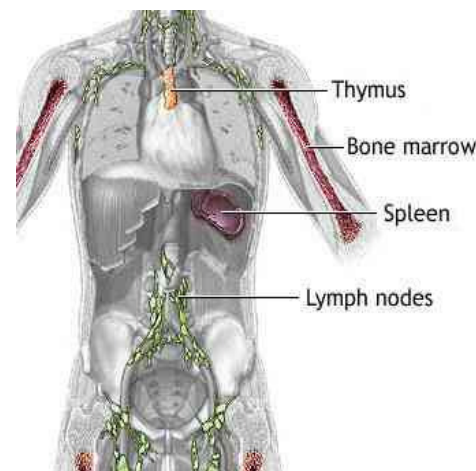
Table 2 Relative risk of haematopoietic malignancies in patients with RA

Type	Inpatient Register RA		Early Arthritis cohort	
		SIR		SIR (95% CI)
All haematopoietic malignancies		1.7		1.6
Malignant lymphoma including CLL		1.9		2.0
Plasma cell neoplasms		0.8		0.0
Leukaemia excluding CLL		2.1		2.2
Acute lymphatic leukaemia		0.9		0.0
Acute myeloid leukaemia		2.4		4.3
Chronic myeloid leukaemia		2.4		0.0
Other or undefined leukaemia		1.5		0.0
Polycythaemia vera		0.9		0.0

Ann Rheum Dis 2005;64:

rheumatoid arthritis - mortality and critical events

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Relative risk of selected haematopoietic sites by time of follow up

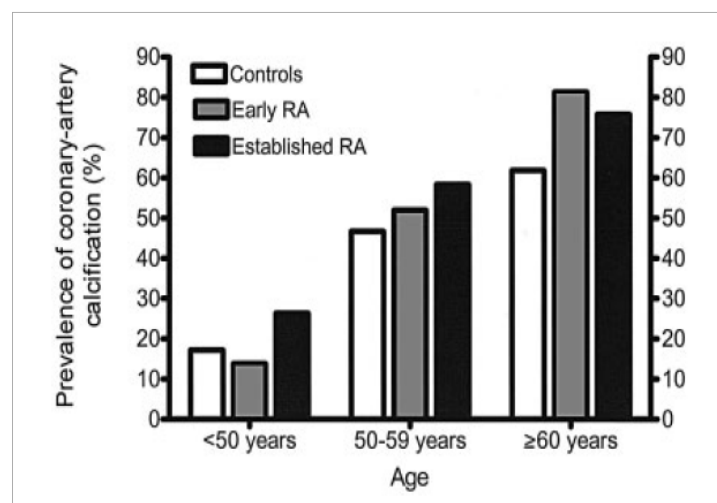
Site (ICD code)	relative risk (95% CI) by time with RA*		
	1-4 years	5-9 years	10+ years
All haematopoietic malignancies	1.5	1.5	1.5
Malignant lymphoma including CLL	1.6	1.7	1.7
Plasma cell neoplasms	0.9	0.6	0.7
Leukaemia excluding CLL	1.9	1.7	2.0
Acute lymphatic leukaemia	1.5	0.0	0.0
Acute myeloid leukaemia	2.2	1.8	2.1
Chronic myeloid leukaemia	1.2	3.2	3.6
Other or undefined leukaemia	1.7	1.4	1.4
Polycythaemia vera	1.5	0.8	0.2

Ann Rheum Dis 2005;64:

rheumatoid arthritis - coronary artery calcium scores

	Control subjects (n = 86)	Early RA (n = 70)	Established RA (n = 71)
Agatston score, median (IQR)	0 (0–19.2)	0 (0–42.6)	40.2 (0–358.8)
Prevalence of coronary-artery calcification, %	38.37	42.86	60.56
Agatston score subgroups, %			
1–109	24.42	25.72	19.72
>109	13.95	17.14	40.84
OR (95% CI) [†]			
Unadjusted	1	1.21 (0.65–2.26)	3.03 (1.65–5.57)
<i>P</i>		0.55	<0.001
Adjusted for age and sex	1	1.31 (0.65–2.64)	2.73 (1.36–5.47)
<i>P</i>		0.45	0.005
Adjusted for cardiovascular risk factors	1	1.44 (0.67–3.10)	3.42 (1.55–7.53)
<i>P</i>		0.35	0.002

- cause of increased CAD not clear
- smoking is more prevalent
- traditional risk factors still important
- ESR tracks with CAD
- inflammation an important driver



rheumatoid arthritis - coronary artery calcium scores

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Clinical characteristics of patients with rheumatoid arthritis (RA) and control subjects[‡]

→ Total pack-years of smoking	0 (0–11)	0 (0–22)	0 (0–25)
→ Hypertension, %	38.4	38.6	67.6
→ Coronary-artery procedure, %	5.8	5.7	9.9
Glucose, mg/dl	89.0 (83.0–94.0)	86.0 (81.0–93.0)	88.0 (83.0–96.0)
Creatinine, mg/dl	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.6–0.9)
Total cholesterol, mg/dl	195.0 (171.0–216.0)	184.0 (161.0–210.0)	189.0 (153.0–214.0)
High-density lipoprotein, mg/dl	45.0 (39.0–54.0)	40.0 (35.0–50.0)	45.5 (38.0–57.0)
Low-density lipoprotein, mg/dl	123.0 (105.0–145.0)	114.0 (94.0–137.0)	114.5 (84.0–136.0)

rheumatoid arthritis - underwriting perspective

- individual consideration - many variables
- decline systemic disease

Severity	Criteria	disability
Mild	Little or no disease activity, peripheral joints only, no disability, rheumatoid factor (RF) negative, no extra-articular involvement.	decline*
Moderate	Extensive joint involvement, with relapsing and remitting symptoms and disease activity, some limitation of movement, moderately raised RF titre, eye disorders, neuropathy, borderline anemia.	decline
Severe	Marked disease activity with frequent recurrences or prolonged attacks, high RF titre, other possible systemic manifestations including cardiomyopathy, rheumatoid lung, amyloidosis or valvular heart disease.	decline

* offer with exclusions for mild Δ with no activity and no residua after some years

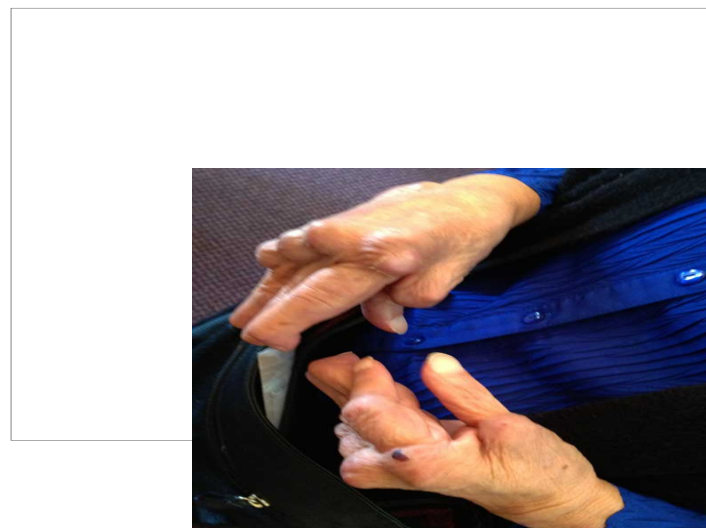
rheumatoid arthritis - claims and work capacity (1)

- Ariel Kwan aged 18
- National Youth Orchestra Canada
- RA for 4 years

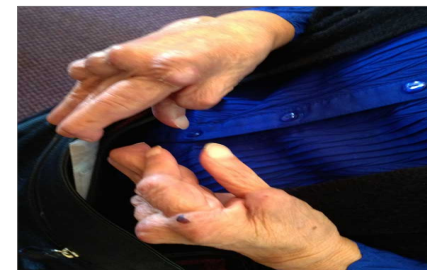
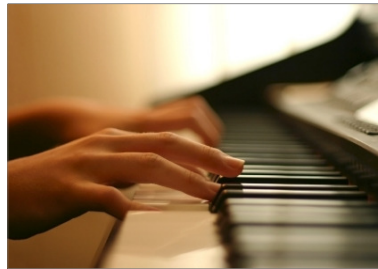


rheumatoid arthritis - claims and work capacity (2)

Table 1 Advantages and disadvantages of quantitative radiographic measures in rheumatoid arthritis	
Advantages	Disadvantages
Excellent quantitative scoring systems	Quantitative score tedious to perform
Erosions are closest to pathognomonic sign in RA	Less sensitive to detect abnormalities than MRI, ultrasound
Reflect cumulative damage of disease	Radiographic damage has little prognostic value for work disability, death, or even joint replacement



rheumatoid arthritis - claims and work capacity (3)



rheumatoid arthritis - claims and work capacity (4)

permanent work disablement in prospective studies

- 20 - 30% disabled in first 2 - 3 yrs
- 50% disabled by 10 years

Table II. Work disability in rheumatoid arthritis; prospective studies including patients with early rheumatoid arthritis.

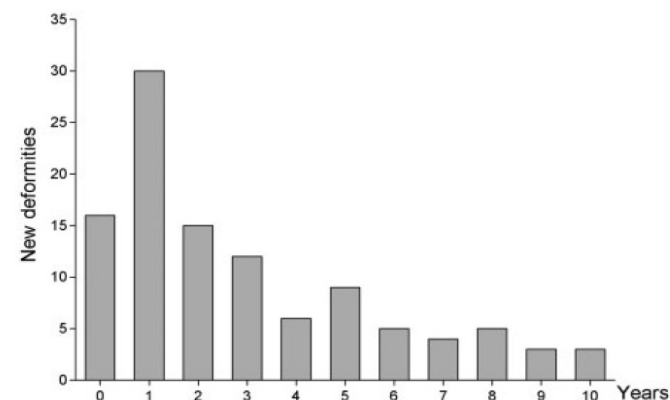
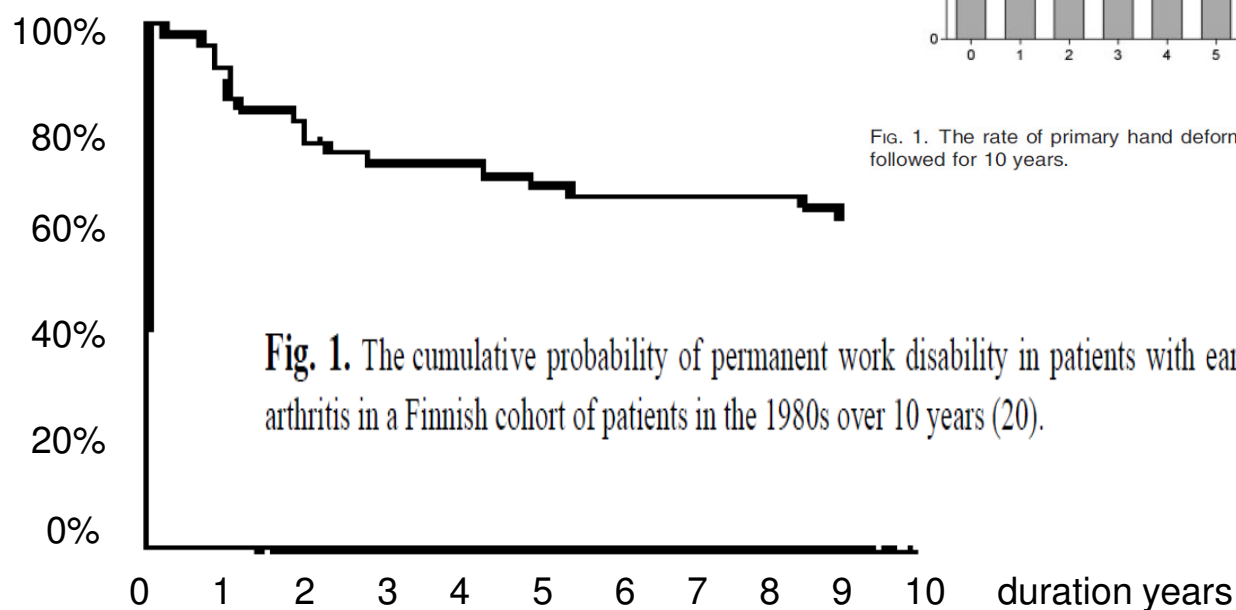
Reference	No of patients	Mean disease duration (years) at review	% working at review
Kaarela <i>et al.</i> 1987 (16)	103	1	69%
Jäntti <i>et al.</i> 1999 (30)		20	20%
Borg <i>et al.</i> 1991 (17)	83	2	63%
Mau <i>et al.</i> 1996 (18)	73	6	51%
Fex <i>et al.</i> 1998 (19)	86	7	66%
Sokka <i>et al.</i> 1999 (20)	82	10	58%
Albers <i>et al.</i> 1999 (21)	186	3	58%
Barrett <i>et al.</i> 2000 (22)	160	10	61%
Barrett <i>et al.</i> 2000 (22)	134	2	67%
Newhall-Perry <i>et al.</i> 2000 (23)	95	1	82%
Paimela <i>et al.</i> 2000 (48)	102	7	70%
Young <i>et al.</i> 2002 (24)	353	5	60%
Puolakka <i>et al.</i> 2002 (44)	80, on combination	5	80%
	82, single DMARD	5	71%
Häkkinen <i>et al.</i> 2003 (25)	50	2	68%

DMARD=disease modifying anti-rheumatic drug

rheumatoid arthritis - claims and work capacity (5)

cumulative probability of work disablement - Finland

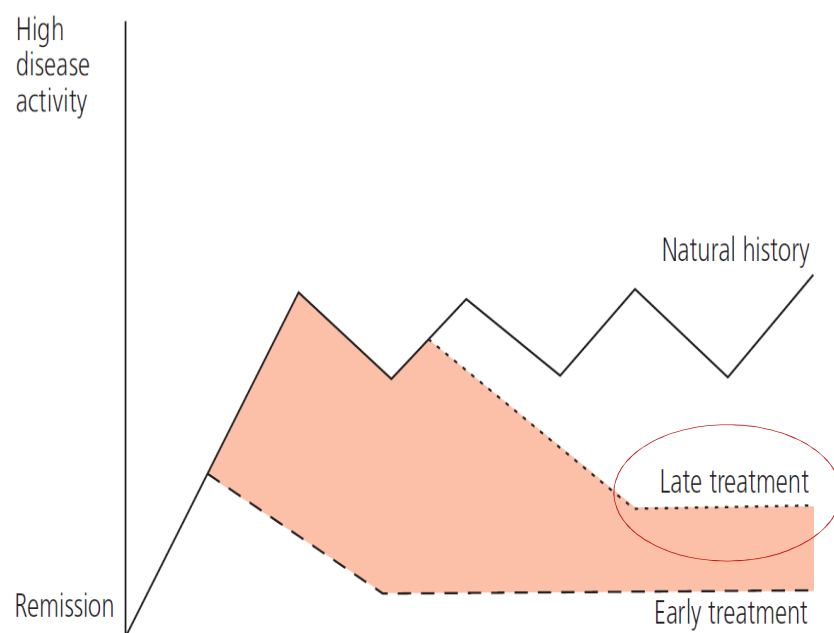
- rapid development of work disability in early RA
- cumulative work disability at 10 years - 45%



rheumatoid arthritis - Australia

indicators of poorer outcomes

Around 25% of people may stop working, or have a reduced capacity to work, 6 years after diagnosis.¹



MJA 2006;184:122–5

Box 2: Indicators of poorer outcome in rheumatoid arthritis^{2,4,5,8}

Clinical presentation

- High disease activity at onset
- Long duration of disease
- Large number of swollen joints (> 20)*
- Involvement of small joints of hands and feet
- Early involvement of large joints
- Extra-articular features (e.g. nodules)
- Impaired functional status

Laboratory tests at onset

- Positive rheumatoid factor*
- Elevated erythrocyte sedimentation rate (ESR)* or C-reactive protein (CRP)*
- Anti-cyclic citrullinated peptide (anti-CCP) antibodies
- Early radiological erosions

Sociodemographic status

- Female
- Onset in early adulthood
- Onset in elderly males
- Smoking
- Low socioeconomic status
- Low educational level

rheumatoid arthritis - Australia - protocols for treating doctors

Monitor disease activity and drug toxicity to guide choice of and changes in treatment.^{2,5} Review patients every 1–3 months, until clinical remission is achieved, for measures of disease activity including:

- number of tender and swollen joints
- duration of morning stiffness
- elevated ESR and CRP levels
- functional status (e.g. activities of daily living)

Joint damage may be assessed by X-ray every 6–12 months during the first few years.²



autoimmune disease

rheumatoid arthritis

LADUCA April 2014

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Medical Director
RGAA