Nurse-led care: is the future orange?

Using the evidence to maximise the effects

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Rheumatology 2014
29 April-1 May | Liverpool, UK

Dr Mwidimi Ndosi

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- This speaker has no conflicts of interest

The British Society for Rheumatology

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Aim

- To provide an overview of nurse-led care (NLC) setup and how its benefits can be maximized

Outcome

- You will have a greater understanding of the evidence for NLC in rheumatology and the opportunities for improving its effects

Outline

- Background
- Evidence
  - previous research
  - growing evidence
- Cost effectiveness
- Other benefits
- What is the way forward?

Background

- Improvements over the last decade
  - Better understanding of disease process, assessments and management
  - Treatment goal includes remission
  - Need for increased monitoring in outpatient settings
  - Need for a more coordinated MDT – NLC

Background

- Nurse-led care (NLC) is established in RA
  - Pioneered in the UK
- NLC model
  - Holistic approach to care – patients' needs
  - Experienced practitioners – with extended roles
  - Diagnosis & treatment plan established
  - Supplementary rather than substitution

Outline

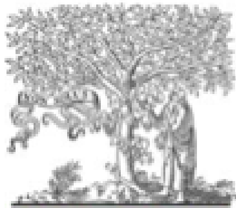
- Background
- Evidence
  - previous research
  - growing evidence
- Cost effectiveness
- What is the way forward?

Evidence

- 2 Systematic reviews
  - Ndosi et al (2011) *Int J Nurs Stud*, **48**(5)642-54
  - Van Eijk-Hustings et al (2012) *Ann Rheum Dis*, **71**(1)13-9
- Growing evidence
  - RCT of effectiveness
  - Cost-effectiveness

Evidence – previous research

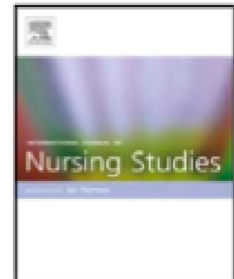
International Journal of Nursing Studies 48 (2011) 642–654



Contents lists available at ScienceDirect

International Journal of Nursing Studies

journal homepage: www.elsevier.com/ijns



Review

The effectiveness of nurse-led care in people with rheumatoid arthritis: A systematic review

Mwidimi Ndosi [a,*], Karen Vinall [a], Claire Hale [a,b], Howard Bird [c], Jackie Hill [a]

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ARTICLE INFO

ABSTRACT

Evidence – previous research

- 4 RCTs of effectiveness
  - Hill et al (1994) *Rheumatology* **33**(3) 283-8
  - Hill et al (1997) *J Adv Nurs* **25**(2) 347-54
  - Hill et al (2003) *Musculoskeletal Care* **1**(1) 5-20
  - Tijhuis et al (2002) *Arthritis Care* Res **47**(5) 525-31
  - Tijhuis et al (2003) *J Adv Nurs* **41**(1) 34-3
  - Ryan et al (2006) *J Adv Nurs*, 53: 277–286

Evidence – previous research

- Conclusions
  - Insufficient evidence to support or refute NLC effectiveness
  - Need for more good quality RCTs of effectiveness
- Not included
  - Hill et al (2009) Rheumatology **48**(6) 658–64 OA
  - Kroese et al (2008) Arthritis Rheum **59**(9)1299-1305 FM
  - Van der Hout (2003) *Ann Rheum Dis* **62**(4) 308-15 Cost

Evidence – previous research

- Van Eijk-Hustings et al (2012) EULAR recommendations for the **role of the nurse** in the management of chronic **inflammatory arthritis** *Ann Rheum Dis* **71**(1)13-9
- 10 recommendations
  - 4 were based on category 1 evidence
    - 1A: Meta-analysis of RCTs
    - 1B: At least one RCT

Van Eijk-Hustings et al (2012)

- To improve **knowledge** of disease and management
- Improved **communication, continuity** and **satisfaction** with care
- Control **disease activity**, reduce **symptoms** and improve **patient-preferred outcomes**
- Address **psychosocial** issues

Growing evidence

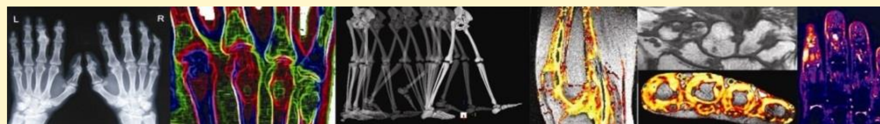
- New RCTs
  - Primdahl et al (2014) *Ann Rheum Dis* **73**(2) 357-64 RA
  - Larsson et al (2014) *J Adv Nurs* **70**(1) 164-75 IA
  - Ndosi et al (2013) *Ann Rheum Dis* **Aug 27** [Epub] RA
  - Koksvik et al (2014) *Ann Rheum Dis* **72**(6) 836-43. IA
  - De la Torre-Aboki (2013) *Ann Rheum Dis* **72**(S3) A357 RA
  - Soubrier et al (2013) *Ann Rheum Dis* **72**(S3) A131 RA
  - Dougados et al (2013) *Ann Rheum Dis* **72**(S3) A150 RA

Growing evidence

- Cost effectiveness
  - Van den Hout et al (2003) *Ann Rheum Dis* 62(4):308-15
  - Ndosi et al (2013) *Ann Rheum Dis,* **doi:**10.1136/annrheumdis-2013-203403
- Qualitative evidence
  - van Eijk-Hustings et al (2013) *Ann Rheum Dis* **72**(6), 831-5.
  - Bala et al (2012) *Musculoskeletal Care,* **10**(4), 202-11

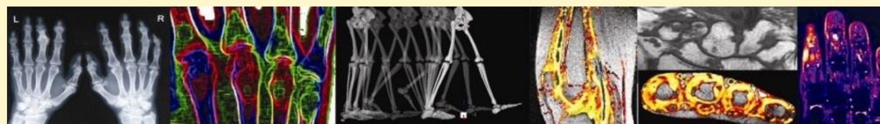
Primdahl et al (2014)

- Primdahl et al (2014) **Shared care** or **nursing consultations** as an alternative to rheumatologist follow-up for RA outpatients with low disease activity—patient outcomes from a 2-year, RCT *Ann Rheum Dis, 73*(2), 357-364
  - 1-yr follow-up self-efficacy results Primdahl et al (2012) *Patient Educ Couns 88*(1), 121-128
  - Focus group study on self-efficacy Primdahl et al (2011) *Scand J Caring Sci 25*(2), 394-403



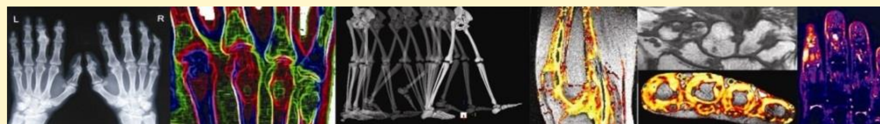
Primdahl et al (2014) - Patients

- Inclusion criteria
  - At least 18 months post diagnosis
  - Stable RA (DAS28-CRP<3.2)
  - HAQ<2.5
  - No increase in DMARD in the last 3 months
- Exclusion criteria
  - Biologic or gold treatments
  - Comorbidity with life expectancy <5 years



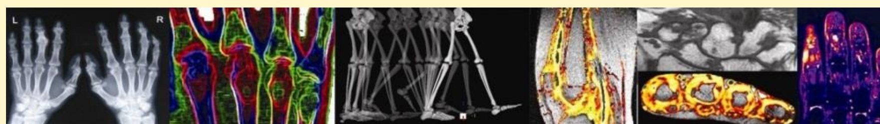
Primdahl et al (2014) - Interventions

- Control: RLC 20-30 min consultations, 3-12 monthly
- Experimental groups
  - Nursing consultations
    - 30-min nurse appointments 3-monthly
    - Access to telephone advice lines
    - If DAS28>3.2, rheumatologist to see within 5 days
  - Shared care - intervention
    - No appointments except annual review
    - Blood monitoring by GP
    - Access to nurse via telephone advice lines



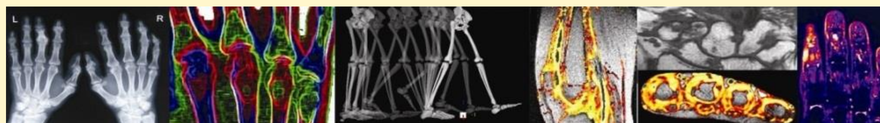
Primdahl et al (2014) - Outcomes

- Primary outcome
  - Disease activity DAS28-CRP
  - Change from baseline (2-year follow-up)
- Analysis:
  - Between-groups difference
    - RLC - Shared care
    - RLC – NLC
  - Between-group difference in the number of patients with DAS28>3.2 and DAS28>0.6



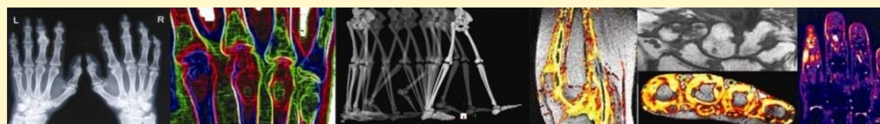
Primdahl et al (2014) - Results

- N = 287 (RLC 97; Shared care 96; NLC 94)
- Between group differences (2 years)
  - RLC – Shared: -0.17 (-0.45, 0.10)
  - RLC – NLC: -0.28 (-0.55, -0.00) p = 0.049
- Patients with DAS28>3.2 and DAS28>0.6
  - RLC (1yr, 2yrs) 24 17
  - Shared (1yr, 2yrs) 20 16 NS
  - NLC (1yr, 2yrs) 15 11



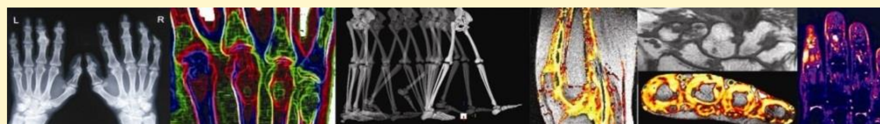
Primdahl et al (2014) - Conclusions

- Safe to implement shared care OR NLC in tight monitoring of patients with low disease activity
- NLC likely to increase self-efficacy, confidence and satisfaction with care
- Future studies
  - NLC with less frequency
  - NLC for more active disease activity



Swedish studies

- Larsson et al (2013) J Adv Nurs, doi: 10.1111/jan.12183
- Ongoing RCT in Gothenburg
  - Evaluating the efficacy of **tight control Nurse-led clinic** in established RA and **moderate** to **high** disease activity compared to patients receiving regular care. ClinicalTrials.gov identifier: NCT02019901



Larsson et al (2013)

JAN JOURNAL OF ADVANCED NURSING

ORIGINAL RESEARCH

Randomized controlled trial of a nurse-led rheumatology clinic for monitoring biological therapy

Ingrid Larsson, Bengt Fridlund, Barbro Arvidsson, Annika Teleman & Stefan Bergman

Accepted for publication 11 May 2013

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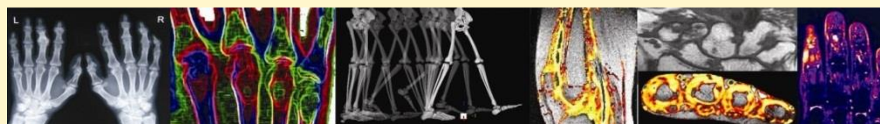
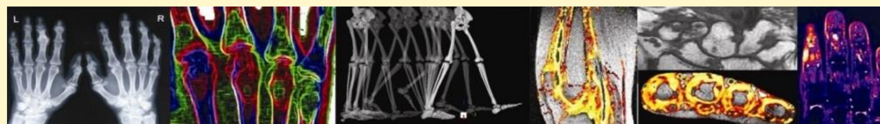
LARSSON I., FRIDLUND B., ARVIDSSON B., TELEMAN A. & BERGMAN S. (2013) Randomized controlled trial of a nurse-led rheumatology clinic for moni-



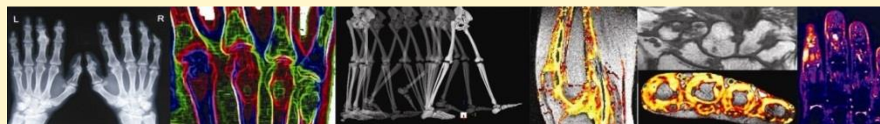
Larsson et al (2013) - Objective

- To compare and evaluate the treatment outcomes of a **nurse-led clinic** and a **rheumatologist-led cli**nic in patients with **low disease activity** or in **remission** who are undergoing **biological therapy**



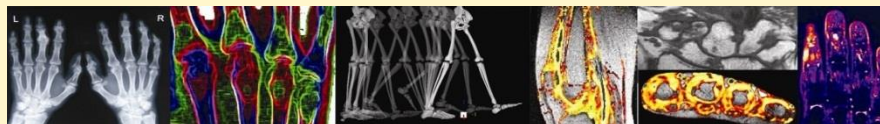
Larsson et al (2013) - Patients

- Inclusion criteria
  - Chronic inflammatory arthritis (CIA)
    - RA (62%), undifferentiated arthritis (3%)
    - USpA (16%), PsA if had peripheral arthritis (18%)
  - DAS28 ≤ 3.2
- Exclusion criteria
  - Recurrent infection
  - Adverse effects due to biologics



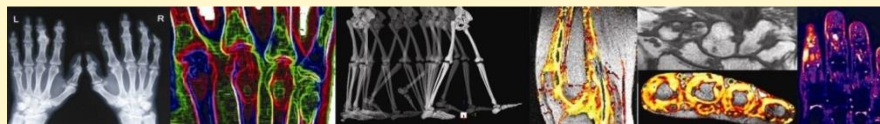
Larsson et al (2013) - Interventions

- Control: Monitoring by rheumatologist
  - 6-monthly appointments (30min sessions)
  - In-between access to clinic if required
- Experimental: Nurse-led person-centred care
  - 6-month appointments (30min session) with the nurse, then 12-month with rheumatologist
  - In-between access to nurse if required



Larsson et al (2013) - Outcomes

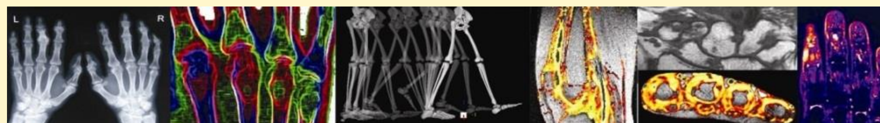
- Primary outcome
  - DAS28 (and DAS28-CRP)
  - Within-group changes (12month – baseline)
  - Between-group differences (NLC – RLC)
- Analysis
  - Within-group changes – paired t-test
  - Between-group differences – independent t-test



Larsson et al (2013) - Results

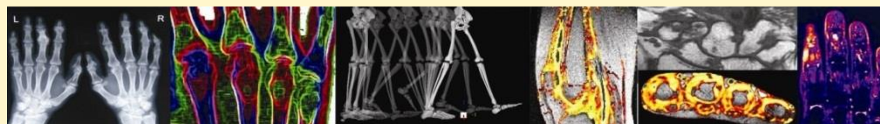
- Within-group mean changes (95%CI)
  - NLC DAS28: **0.14** (-0.07, 0.34); p=0.19
  - RLC DAS28: **0.20** (0.00, 0.39); p=0.048

- Between-group differences (in changes)
  - DAS28 -0.06 (-0.34, 0.22); p=0.66
  - DAS28-CRP 0.05 (-0.28, 0.19); p=0.70



Larsson et al (2013) - Conclusions

- NLC based on patient-centered care is safe and purposeful
- Patients with CIA undergoing biologic therapy with low disease activity or remission could be monitored by NLC without difference in outcome



Ndosi et al (2014)

ARD Online First, published on August 27, 2013 as 10.1136/annrheumdis-2013-203403
Clinical and epidemiological research

OPEN ACCESS

EXTENDED REPORT

The outcome and cost-effectiveness of nurse-led care in people with rheumatoid arthritis: a multicentre randomised controlled trial

Mwidimi Ndosi,[1] Martyn Lewis,[2] Claire Hale,[1,3] Helen Quinn,[3] Sarah Ryan,[4] Paul Emery,[5,6] Howard Bird,[5] Jackie Hill[1]

Handling editor Tore K Kvien

▸ Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/annrheumdis-2013-203403).

ABSTRACT
Objective To determine the clinical effectiveness and cost-effectiveness of nurse-led care (NLC) for people with rheumatoid arthritis (RA).
Methods In a multicentre pragmatic randomised controlled trial, the assessment of clinical effects

preventing structural damage and optimising function and social participation.[7]

The management of RA has seen significant changes over the past decade due to increased understanding of the disease processes, diagnostic techniques and the development of more effica-

Ndosi et al (2014) - Patients

- Inclusion criteria
  - Diagnosis of RA (ACR criteria 1987)
  - Both **low disease** and **high/moderate** disease
  - Ability to complete questionnaires unaided
- Exclusion criteria
  - Unstabilised concomitant diseases
  - Awaiting surgery
  - Receiving care from practitioner in the trial

Ndosi et al (2014) - interventions

- Intervention: Nurse-led clinic
  - 3-monthly nurse-led follow-up (20min sessions)
  - Normal practice
- Control: Rheumatologist-led clinic
  - 3-monthly follow-up by rheumatologist (15min sessions)
  - Normal practice

Ndosi et al (2014) - Outcomes

- Primary outcome: DAS28
  - (Change)$_{RLC}$ - (Change)$_{NLC}$
  - (DAS28W13–DASW0)$_{RLC}$ - (DAS28W13–DASW0)$_{NLC}$
  - H0: Mean ΔDAS28$_{RLC}$ – Mean ΔDAS28$_{NLC}$ ≥ 0.6
- Cost
- Analysis:
  - 3-Linear mixed models
  - Cost-effectiveness

Ndosi et al (2014) - Results

Week 52

Week 39

Week 26

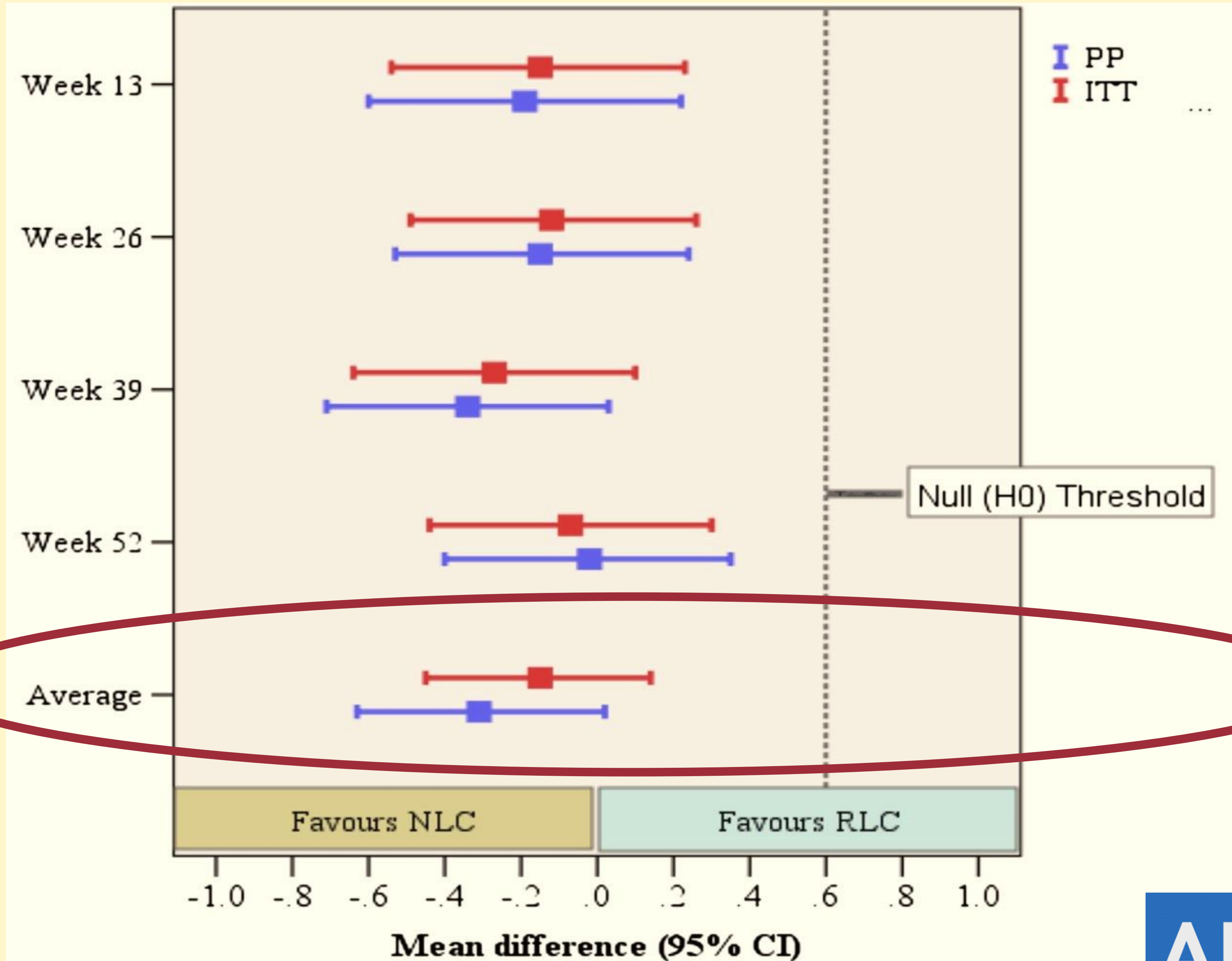
Week 13

Non-inferiority Threshold

-1.2 -0.6 0 0.6 1.2

← Favours NLC   Favours RLC →

Summary estimates for change in DAS28 over 12 months.



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ARD

Ndosi et al (2014) - Results

- Primary outcome: DAS28
  - Average changes DAS28 RLC 0.02; NLC 0.11
  - Average difference (95%CI): -0.31 (-0.64, 0.03)
  - H0: Mean $\Delta DAS28_{RLC}$ – Mean $\Delta DAS28_{NLC}$ ≥0.6
- Conclusion
  - Robust evidence that NLC is not inferior

Outline

- Background
- Evidence
  - previous research
  - growing evidence
- Cost effectiveness
- What is the way forward?

Ndosi et al (2014) - Results

- Cost data
  - NHS perspective
  - Healthcare perspective
  - Societal perspective

- Cost (Healthcare perspective – complete case)
  - Cost (95%CI): NLC £1276; RLC £2286
  - Difference (95%CI): £852.15 (-63.37, 1767.67)

Ndosi et al (2014) - Results

Effectiveness ←

Costs ↓

	Increased	Same	Reduced
Increased	**A** More effective/More costly **Inconclusive**	**B** Equally effective/More costly **Reject**	**C** Less effective/More costly **Reject**
Same	**D** More effective/Equally costly **Accept**	**E** Equally effective/Equally costly **Inconclusive**	**F** Less effective/Equally costly **Reject**
Reduced	**G** More effective/less costly **Strongly favoured**	**H** Equally effective/Less costly **Accept**	**J** Less effective/Less costly **Inconclusive**

Adapted and modified from Nixon et al (2001) *BMJ:* ***322***(7302),1596-98.

Cost effectiveness plane

Mean differences (RLC - NLC)

	(-) Difference in Effects	(+) Difference in Effects
(+) Difference in costs	NLC Dominant	acceptable / Unacceptable
(-) Difference in costs	acceptable / Unacceptable	RLC Dominant

(-) Difference in costs (+)
(RLC – NLC)

(-) Difference in Effects (+)

DAS28 change - Healthcare perspective

COST-EFFECTIVENESS PLANE (PP analysis)

Incremental Cost, £ (RLC minus NLC)

2500
2000
1500
1000
500
0
-500
-1000
-1500
-2000
-2500

91.8%

3.0%

5.0%

0.2%

-.90
-.60
-.30
.00
.30
.60
.90

Incremental DAS28 change (RLC minus NLC)

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DAS28 change - Healthcare perspective

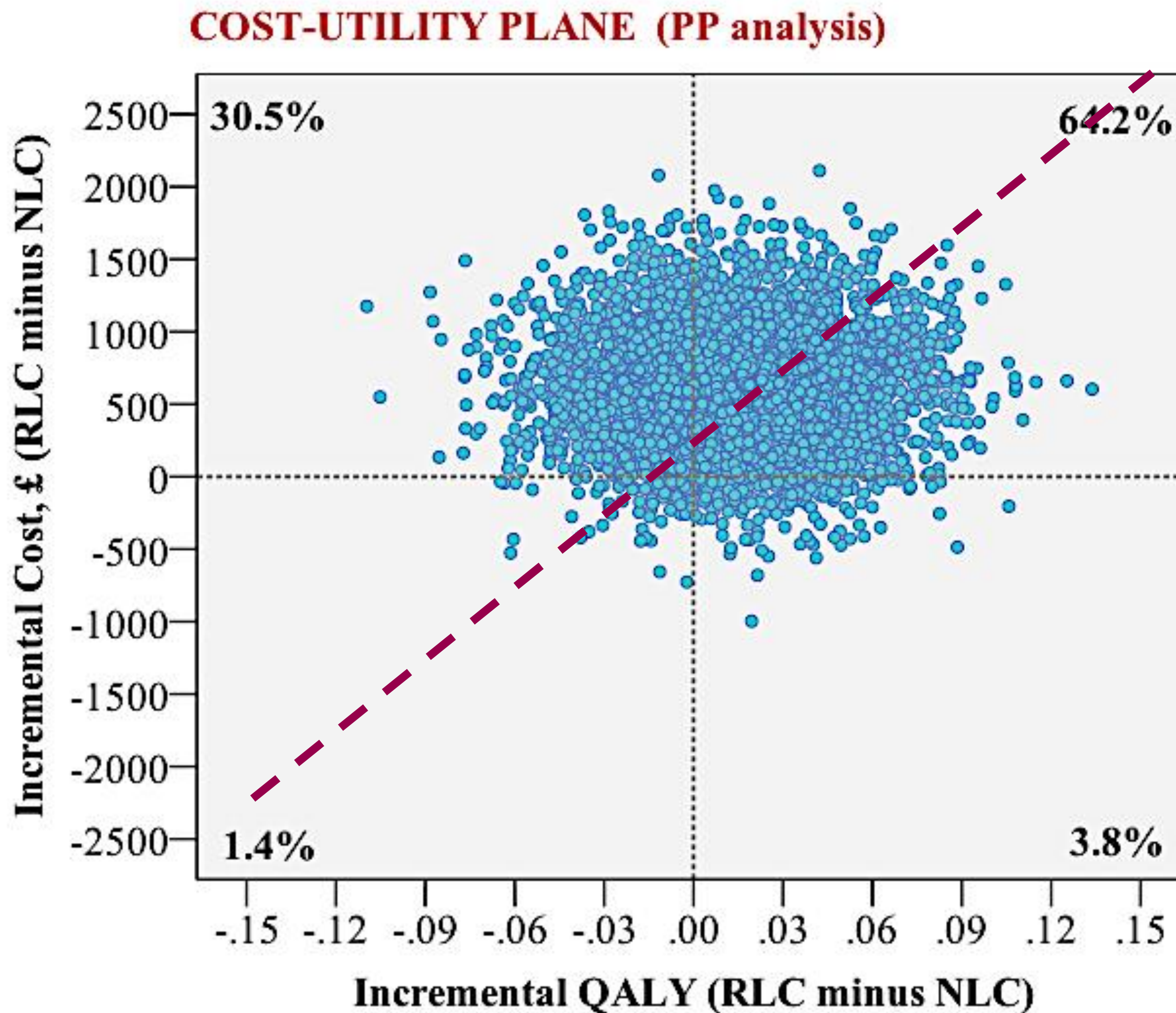
COST-EFFECTIVENESS PLANE (ITT analysis)

67.9%
8.9%
19.7%
3.5%

Incremental Cost, £ (RLC minus NLC)
1500
1000
500
0
-500
-1000
-1500

-.90
-.60
-.30
.00
.30
.60
.90
Incremental DAS28 change (RLC minus NLC)

QALY - Healthcare perspective



CEAC – Healthcare perspective

Probability (%) NLC cost effective

100
90
80
70
60
50
40
30
20
10
0

0 5 10 15 20 25 30 35 40 45 50

Willingness-to-pay (WTP), £, 000s

DAS28 - PP
DAS28 - ITT

CEAC – Healthcare perspective

Probability (%) NLC cost effective

100
90
80
70
60
50
40
30
20
10
0

0 5 10 15 20 25 30 35 40 45 50

Willingness-to-pay (WTP), £, 000s

DAS28 - PP
DAS28 - ITT
QALY – PP

Conclusion

- Probability based on DAS28 (reduction of 0.6)
  - WTP £2,000 + above > 90%
- Probability based on QALYs gained
  - WTP £10,000 – 15,000 = 45 – 50%
- Difference between disease-specific vs generic measures limit strong policy conclusions

Outline

- Background
- Evidence
  - previous research
  - growing evidence
- Cost effectiveness
- What is the way forward?

Is the future orange?

Is the future orange?

"The farther back you can look, the farther forward you are likely to see."

Winston Churchill

The way forward

- NLC was originally driven by **patients' needs**
  - Bird (1989) *Ann Rheum Dis.* 42(3):354-355
  - Hill (1985) *Nursing Times* 81, 33–34
- Evaluating service
- Maximising the effects – more or less?

The way forward

- RCT evidence
  - Stable RA
  - Biologics therapy
  - Low, moderate & high disease activity
  - Other outcomes
- Qualitative evidence

Van Eijk-Hustings et al (2012)

- Van Eijk-Hustings et al (2012)
  - To improve **knowledge** of disease and management
  - Improved **communication, continuity** and **satisfaction** with care
  - Control **disease activity**, reduce **symptoms** and improve **patient-preferred outcomes**
  - Address **psychosocial** issues

The way forward

- Do we need to see all patients?
- Patient empowering
- Managing flare
- Annual review
- Telephone advice lines+
- Psychosocial issues – measuring impact
- Training needs

Thank you for listening