respectively). Costs for admission and readmission in Rheumatology department were 5230 and 3175 euros respectively.

Conclusions: Admission and readmission of patients with RA are mostly due to infections and cardiovascular causes. Estimated direct costs are higher for patients admitted to Intensive Care Unit or Oncology

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FRI0622

TRENDS IN ENCOUNTERS WITH RHEUMATOLOGISTS IN A PUBLICLY-FUNDED SINGLE PAYER HEALTHCARE SYSTEM

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Background: Rheumatology workforces are challenged by too few physicians, increasing incidence and prevalence of MSK diseases (and complexity of co-morbid conditions) in aging populations, and expanding therapeutic options that increase demand for service. Understanding trends in rates of rheumatology encounters with new and existing patients will help to identify why patients have delays to rheumatology care and mobilize efforts to help meet patients' needs.

Objectives: To describe trends in patient encounters with rheumatologists over time in Ontario, Canada.

Methods: We analyzed administrative health data from 2000 to 2013 in Ontario, Canada, where all 13 million residents are covered by a publicly-funded healthcare system and access to rheumatologists is dependent upon referrals. During this time, Ontario had a stable rheumatology supply of 1 rheumatologist per 75,000 population (0.7 FTEs/75,000). We determined annual incident, follow-up and total patient encounters seen by rheumatologists. Rates were calculated using the total population of Ontario residents 18 and older, each year. Diagnosis codes assigned at each encounter were used to assess changes in the case-mix of patients under rheumatology care over time.

Results: From 2000 to 2013, the proportion of all Ontario residents seen by rheumatologists was constant over time (2.7%). The total number of rheumatology encounters increased from 561,452 to 742,952 but the total encounter rate remained relatively stable over time (table 1). The annual new consultation rate significantly declined over time from 1.6 to 0.8 new patients per 100 population. Both the annual proportion of incident patients and the ratios of incident to established patients and incident to total patient encounters declined significantly over time. We observed a shift in the diagnostic case-mix over time: encounter rates for systemic inflammatory conditions significantly increased over time and encounter rates for non-systemic conditions (OA, regional MSK conditions) decreased. The volume of rheumatoid arthritis (RA) encounters increased the most, with 17% of all rheumatology encounters related to RA in 2000 versus 32% in 2013.

Table 1 Trends in rheumatology encounters over time, rates expressed per 100

Year	Total Number of Unique Patients (%)	Total Patient Encounters	Total Encounter Rate ^a	New Consultation Rate ^b	Proportion of New Patients out of all Unique Patients	Proportion of New Patients out of Total Encounters	Ratio of New / Established Patients
2000	245486 (2.7%)	561452	6.2	1.6	59%	26%	1.5
2001	255289 (2.8%)	588581	6.4	1.4	52%	23%	1.1
2002	263139 (2.8%)	599278	6.4	1.4	48%	21%	0.9
2003	250176 (2.6%)	571366	6.0	1.2	44%	19%	0.8
2004	258751 (2.7%)	599821	6.2	1.1	41%	18%	0.7
2005	273462 (2.8%)	634730	6.5	1.1	40%	17%	0.7
2006	286309 (2.9%)	663302	6.7	1.1	39%	17%	0.6
2007	280072 (2.8%)	652933	6.5	1.0	35%	15%	0.5
2008	282959 (2.8%)	667337	6.5	0.9	34%	14%	0.5
2009	284158 (2.7%)	685195	6.6	0.9	33%	14%	0.5
2010	285103 (2.7%)	693667	6.6	0.9	32%	13%	0.5
2011	288422 (2.7%)	725807	6.9	0.8	31%	12%	0.5
2012	281754 (2.6%)	698384	6.5	0.8	31%	12%	0.4
2013	293704 (2.7%)	742952	6.8	0.8	30%	12%	0.4

^a Percentage represents the proportion of Ontario Residents seen by a rheumatologist

^b Numerator: Total rheumatology encounters; Denominator: Total population

^c Numerator: Number of new patients; Denominator: Total population

Conclusions: The significant decline in new patient consultation rates over time helps illustrate the growing supply-demand mismatch in rheumatology care. An increasing fraction of rheumatology encounters in Ontario are with established

patients, which may be limiting access for new consultations and increasing wait times. We also observed a shift in the patient case-mix over time with rheumatologists seeing/prioritizing more systemic inflammatory conditions. Our findings provide new inputs for rheumatology workforce planning models.

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FRI0623

COST-EFFECTIVENESS ANALYSIS FOR THE TREATMENT OF EARLY RHEUMATOID ARTHRITIS WITH BIOLOGIC DISEASE-MODIFYING ANTIRHEUMATIC DRUGS (DMARDS) COMPARED TO STANDARD OF CARE IN SINGAPORE

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Background: Biologic disease modifying anti-rheumatic drugs (bDMARDs) are known to be effective in controlling disease activity and reducing radiographic progression in patients with rheumatoid arthritis (RA) who have failed methotrexate (MTX). The cost-effectiveness of bDMARDs in comparison to combination conventional synthetic DMARD (csDMARD) therapy in Asian countries has not been well studied, and their place in the DMARD escalation algorithm is unclear.

Objectives: To assess the cost-effectiveness of step-up combination csDMARD versus bDMARD therapy for patients who have failed initial MTX monotherapy over one year.

Methods: We prospectively recruited all adult patients with inflammatory polyarthritis (IP) affecting ≥ 2 peripheral joints and symptom onset after September 1, 2012 from the only two hospitals serving Western Singapore to the Singapore Early Arthritis Cohort (SEAC). Baseline data on demographics, time of symptom onset and DMARD prescription, utility values (EQ-5D) and costs were collected by face to face interview, chart review, hospital financial records and assessment by a trained nurse. A cost-effectiveness analysis (CEA) was then performed using a decision tree comparing four sequences of DMARD therapy: MTX and infliximab, MTX and etanercept, triple therapy (TT) [MTX, sulphasalazine (SSZ) and hydroxychloroquine (HCQ)] and combination MTX and HCQ. An effective treatment was defined as achieving Disease Activity Score 28 (DAS28 (ESR)) < 2.6 ; "remission". A treatment switch to a rescue therapy (MTX and adalimumab) was factored in case of not achieving remission or if serious adverse event was experienced. Cost and utility (using Singapore preference weights¹) information were derived from patients diagnosed with rheumatoid arthritis in the SEAC database as of June 16, 2017. Efficacy, rates of adverse events, disutility from adverse events, indirect costs and cost of serious adverse events were assumed from literature. One-way and probabilistic sensitivity analysis with 10,000 runs was performed.

Results: For the base case, the treatment with MTX and etanercept was dominated by conventional TT. The incremental cost of switching from TT to MTX and infliximab was SGD\$16,118. The net gain in quality-adjusted life years (QALY) was 0.02. The incremental cost-effectiveness ratio (ICER), representing the additional cost of one unit of QALY gained by MTX and infliximab compared with TT, was \$1,024,785/QALY. The probabilistic sensitivity analysis predicted that triple therapy would be the preferred treatment (89.6%) at a willingness-to-pay threshold of SGD\$70,000.

Table 1

Arm	Incremental Cost	QALY	Incremental QALY	ICER
Triple Therapy	-	0.90	-	-
MTX + HCQ	2,587	0.88	-0.02	Dominated
MTX + etanercept	16,024	0.89	-0.01	Dominated
MTX + infliximab	16,117	0.91	0.02	1,024,785

Conclusions: Our model suggests that the ICER of bDMARD therapies explored do not compare favorably to csDMARD therapies. In the Singapore context, societal funding for bDMARDs can only currently be recommended after failure of combination csDMARD.

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FRI0624

MUSCULOSKELETAL PROBLEMS AMONGST TRAIN OPERATORS: A COLLABORATIVE APPROACH TO IDENTIFY SOLUTIONS

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Background: Transport for London (TfL) Occupational Health Dept identified musculoskeletal (MSK) problems as matters of concern in train operating staff on 3 of the underground lines (JNP). These issues were contentious and the subject of continued discussion between the management of TfL, train operators, Unions and other stakeholders. The Bone and Joint Research Group (BJRG) were invited to undertake work to provide insight into the MSK health issues of train operators from a neutral perspective.

Objectives: To assess the problems and issues relating to the musculoskeletal health of train operators.

Methods: A steering committee was created with representatives from the train operators, the Unions, TfL managers and other stakeholders. Participants were recruited to 6 focus groups. Separate focus groups were held for operators, managers and for other stakeholders. The groups were asked to discuss the status of their own MSK health, the impact of work on their MSK health, the support they receive from their employer and others, barriers and facilitators to maintaining MSK health, the role of managers in improving MSK health in the workplace and what interventions would improve MSK health.

The focus groups were recorded transcribed and analysed using Thematic Analysis.

The findings informed a survey of JNP train operators. The survey was co-produced and endorsed by the BJRG, TfL and the Unions and circulated to train operators. The survey included questions on demographics, lifestyle, work role, posture training, MSK problems, actions taken and ideas on how MSK risks could be managed and MSK health protected and improved.

Results: 20% of train operators (338) completed the survey. Respondents reflected the demographic profile of the total JNP train operators. 72% reported not receiving adequate posture training. 74% experienced MSK pain, either currently or in the past. Of these 52% were currently in pain. The average number of months in pain was 59. Lower back, neck and shoulders were the most frequently reported sites of pain. 74% said the pain was caused by or worsened by work. An average of 7 days of work was lost per year due to MSK problems. 44% had not told their manager. Most respondents said their MSK health could be improved by improvements to their seating and cab ergonomics.

Participants acknowledged that it is an individual's responsibility to look after their own MSK health and suggested ways to do this. These included changing position when driving, stretching, improved posture, employing good manual handling techniques, exercising outside of work and eating healthily.

Conclusions: MSK problems are a significant issue among JNP train operators and structural problems are perceived to be the main cause. Operators are aware of their own role in maintaining their MSK health both at work and at home. The study illustrates that it is possible to work effectively and collaboratively with a range of workplace stakeholders to achieve a common goal of improved MSK health. The active involvement of all stakeholders throughout the process and the engagement of a neutral research organisation increased "buy-in" and gave credibility to the project. The findings are currently being considered by the steering committee to produce a series of recommendations at the policy, operational and individual level to protect the MSK health of train operators.

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FRI0625

DIFFERENT STRATEGIES TO IMPLEMENT THE EULAR GUIDELINE FOR CARDIOVASCULAR RISK MANAGEMENT IN DAILY PRACTICE

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Background: The updated EULAR cardiovascular risk management (CVRM) guideline recommends cardiovascular disease risk assessment at least once every five years in all patients with rheumatoid arthritis (RA).¹ A literature search indicates that this guideline is marginally applied in clinical practice.² An important factor explaining dissimilarities in the quality of CVRM could be the different strategies being used to implement this guideline in daily care.

Objectives: This study describes the differences in cardiovascular risk identification and management for patients with RA between outpatient clinics of the members of the Trans-Atlantic Cardiovascular Consortium for Rheumatoid Arthritis (ATACC-RA).

Methods: A questionnaire was sent to all members of ATACC-RA, which included 16 questions about 'the organisation and responsibility of CVRM in their hospital', 'the screening of cardiovascular risk factors', 'communication about CVRM between medical professionals' and 'availability of data regarding CVRM'.

Results: Six out of eight outpatient clinics reported that they work according the EULAR CVRM recommendations. Three strategies to organise CVRM in daily practice could be distinguished: 1) The treating rheumatologist performs CVRM during the outpatient visits; 2) Cardiologists, rheumatologists and/or a general practitioners co-operate in a cardio-rheuma-clinic/team with different tasks and responsibilities and 3) the general practitioner screens and treats cardiovascular risk factors. Six outpatient clinics reported that they have (digital) data about the current CVRM status of their RA patients and are willing to share them to compare the quality of the CVRM care between the different strategies.

Conclusions: Each cardiovascular risk management strategy was based on agreements between medical professionals about who is responsible to perform CVRM. However, each strategy is also (partly) dependent of the national health-care system and financial resources. Independent of how CVRM is organised, communication and feedback between medical professionals about the current CVRM status of each RA patient, are important factors to perform CVRM adequately. Further analyses on the effectiveness of the various systems are warranted.

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