BG Pulse Journal USA
ISSN:1947-2536 http://www.bgpulseusa.com/index.php/bg
BG PULSE JOURNAL

TEACHING NURSING CARE AIMED AT CLINICAL AND LABORATORY DIAGNOSIS, PATIENT CARE AND IMPROVING QUALITY OF LIFE IN RHEUMATOID ARTHRITIS BASED ON THE "INSERT + CASE" TECHNOLOGY

Primova Nargiza Sobir qizi

Teacher of Special Subjects, Zarafshan Public Health

Technical College named after Abu Ali ibn Sino

primovanargiza91@gmail.com

Doi: https://doi.org/10.5281/zenodo.24223335

Abstract. The article examines the teaching of nursing care in rheumatoid arthritis to students of medical technical colleges. It shows that students often memorise laboratory markers such as rheumatoid factor and anti-CCP antibodies without learning to interpret them together with clinical findings, and that diagnosis, nursing care and quality of life are usually taught separately. On the basis of international clinical guidelines and the principle of constructive alignment, an integrated "INSERT + CASE" model is proposed. It combines the INSERT active-reading strategy, which exposes and corrects typical misconceptions, with case-based learning on a simulated patient, formative assessment and reflection. The model includes a four-step diagnostic algorithm, a teaching version of the 2010 ACR/EULAR classification criteria, a nursing care plan linked to patient-reported outcomes, an 80-minute lesson plan and a four-criterion assessment rubric. The model can be used in practical classes of the nursing curriculum; its effectiveness is to be verified in a pilot study.

Keywords: rheumatoid arthritis, nursing education, INSERT strategy, case-based learning, clinical reasoning, laboratory diagnosis, nursing process, quality of life, patient safety.

Introduction

Rheumatoid arthritis (RA) is a chronic autoimmune disease characterised by persistent inflammation of the synovial joints. If inflammation is not controlled, it leads to pain, morning stiffness, fatigue, joint damage and loss of functional independence [1; 2]. According to the World Health Organization, about 18 million people worldwide were living with RA in 2019, and approximately 70% of them were women [1]. Because structural damage may begin early, international guidelines emphasise the prompt referral of patients with persistent synovitis to a rheumatologist and the early start of disease-modifying therapy [3; 5].

The nurse takes part in the care of a patient with RA at several stages: initial assessment of joint complaints, preparation for laboratory tests and explanation of their purpose, monitoring of treatment safety, patient education and support of self-management [6]. Each of these tasks requires clinical reasoning. In practical classes, however, laboratory markers are often presented as isolated facts, and students form simplified rules such as "a positive rheumatoid factor means RA" or "a negative anti-CCP test excludes the disease". In reality, rheumatoid factor (RF) and anti-citrullinated protein antibodies (ACPA) have imperfect sensitivity, seronegative RA exists, and C-reactive protein (CRP) and the erythrocyte sedimentation rate (ESR) reflect inflammation but are

not specific to RA [4; 5]. Moreover, the nursing aspects of the topic — medication safety, patient education and quality of life — are frequently separated from diagnosis.

Active-learning methods are known to improve student performance compared with traditional lecturing [10], and case-based learning is widely used in health professions education to connect theory with clinical decisions [8]. The INSERT (Interactive Notation System for Effective Reading and Thinking) strategy makes students' prior beliefs visible during reading and is therefore suitable for correcting misconceptions [7]. Combining these approaches in a single lesson on RA that also covers nursing care and quality of life remains a relevant methodological problem for medical technical colleges.

Main part

The study is an instructional design study: no intervention was delivered to students, and no learner or patient data were collected, so ethical approval was not required. Theoretical analysis of clinical guidelines and pedagogical literature, content analysis of the curriculum topic and instructional design based on constructive alignment were used; according to this principle, learning outcomes, learning activities and assessment tasks must correspond to each other [9]. The clinical content was selected from the WHO fact sheet [1], the NICE guideline NG100 [3], the 2010 ACR/EULAR classification criteria [4], the 2025 update of the EULAR management recommendations [5] and the EULAR recommendations on the role of the nurse [6]. Only statements directly supported by these sources were included.

As a result, the "INSERT + CASE" model was designed. It consists of five linked stages: the evidence base, INSERT reading, case analysis, formative assessment and reflection (Figure 1). Misconceptions identified during reflection are addressed again in the next INSERT cycle, which makes the model cyclical.

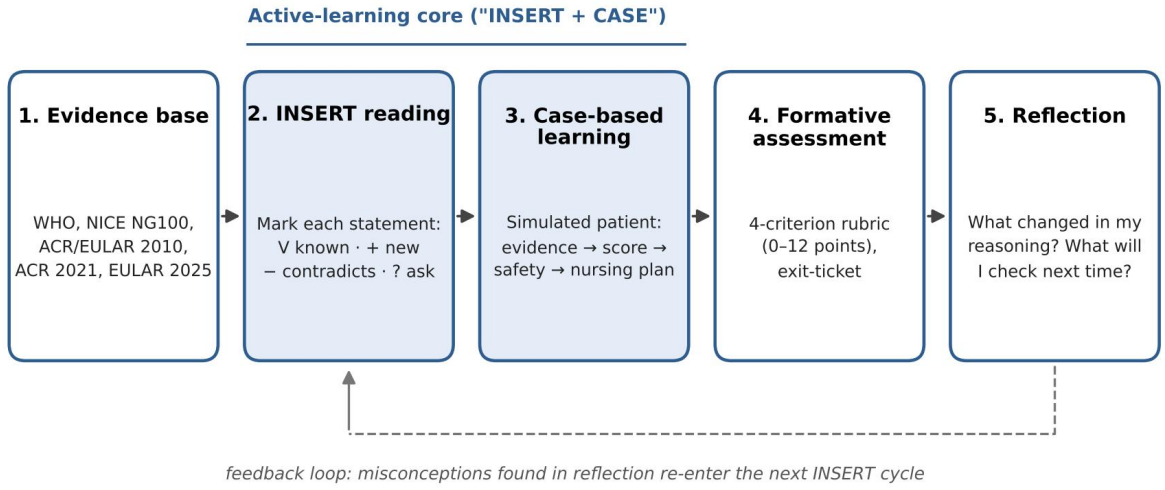


Figure 1. The "INSERT + CASE" model for teaching nursing care in rheumatoid arthritis

At the first stage, the teacher prepares a one-page evidence summary organised as a four-step diagnostic algorithm in which each step is a question that students must answer before moving on (Table 1). Following NICE, students learn that a patient with persistent synovitis of undetermined

cause should be referred to a specialist even if blood tests are normal, and urgently if the small joints of the hands or feet or more than one joint are affected [3]. A single hot, swollen joint with fever is treated as a red flag requiring immediate assessment because of the risk of septic arthritis.

Table 1. Four-step diagnostic algorithm used in the lesson

Step	Key question	Teaching point
1. History and examination	Is there active synovitis?	Swelling and tenderness of small hand joints and wrists, morning stiffness
2. Laboratory tests	Which findings strengthen the suspicion?	RF and anti-CCP support RA; CRP and ESR are not specific; normal values do not exclude synovitis
3. Differential diagnosis	Could another disease explain it?	Osteoarthritis, gout, psoriatic, viral and septic arthritis
4. Referral and plan	Who, how fast, which monitoring?	Persistent synovitis → rheumatologist; blood count, liver enzymes and creatinine before therapy

The 2010 ACR/EULAR criteria are taught with their entry condition: they apply only to a patient with definite clinical synovitis in at least one joint that is not better explained by another disease. Points are assigned for joint involvement (0–5), serology (0–3), acute-phase reactants (0–1) and symptom duration (0–1); a total of 6 or more out of 10 corresponds to definite RA [4]. Students thus learn that the criteria are a classification tool and that an arithmetic sum without checking the entry condition does not lead to a correct conclusion.

At the INSERT stage, students receive statements reflecting typical misconceptions: “RA occurs only in older people”, “a positive anti-CCP result confirms the diagnosis”, “a negative RF excludes RA” and “persistent synovitis requires specialist referral”. While reading, they mark each statement with “V” (I knew this), “+” (new information), “–” (contradicts my belief) or “?” (I have a question) and write down the supporting evidence [7]. Each student explains at least one “–” and one “?”. The marks are a diagnostic tool rather than a grade: the teacher does not penalise the initial error but encourages its correction with evidence.

At the case stage, groups of four analyse a simulated situation. A 42-year-old woman has had pain and swelling in the small joints of both hands for nine weeks, morning stiffness of about 60 minutes, difficulty opening jars and fatigue; synovitis is found in three small joints, RF is negative, anti-CCP is low-positive and CRP is elevated, and she is considering increasing over-the-counter painkillers on her own. The groups identify the evidence of inflammatory arthritis and explain why a negative RF does not exclude RA; calculate the ACR/EULAR score after checking the entry condition (2 + 2 + 1 + 1 = 6 points); discuss the risks of self-medication and the need for a prompt rheumatology review; choose three priority nursing actions; and prepare an accurate and empathetic answer to the patient’s question “Can I go back to work?”.

The nursing component follows the five stages of the nursing process: assessment, identification of problems, planning, implementation and evaluation, with each problem linked to a measurable goal agreed with the patient. Students learn that the nurse does not prescribe or change medication doses; the nurse explains the prescribed plan, checks the patient's understanding, recognises early signs of infection or adverse effects and coordinates safety monitoring [6]. Special attention is paid to the weekly schedule of methotrexate, since confusing it with daily dosing is a serious safety risk. Quality of life is introduced through patient-reported outcomes: the HAQ-DI evaluates difficulty in daily activities on a scale from 0 to 3 [2], and students practise goal-oriented questions such as "Which task was the hardest for you in the last two weeks?".

The model is implemented in an 80-minute lesson: motivation and pre-test (8 minutes), mini-lecture (12), INSERT reading (18), case study in groups (25), presentation and debate (10), and post-test with an exit-ticket (7). The active-learning core therefore occupies 43 minutes, more than half of the contact time. Learning outcomes are evaluated with a rubric of four criteria — recognition of clinical features, interpretation of laboratory tests and criteria, safe nursing priorities and patient-centred reasoning — each scored from 0 to 3 (maximum 12 points); 10–12 points indicate secure performance, 7–9 satisfactory performance and 0–6 the need for further work.

This sequence is consistent with evidence that active learning increases student performance [10] and with the conclusion of a systematic review that case-based learning helps students connect theory with practice [8]. The INSERT stage activates prior knowledge and exposes errors, while the case stage requires the transfer of corrected knowledge to a realistic decision. A distinctive feature of the model is the integration of three domains that are usually taught separately — diagnosis, nursing care and quality of life — which corresponds to the EULAR view of the nurse's role in patient education and monitoring [6]. At the same time, the model has not yet been tested with students, the rubric has not been validated, and the clinical content must be reviewed as guidelines are updated [5].

Conclusion

Teaching nursing care in rheumatoid arthritis requires a shift from memorising laboratory markers to developing clinical reasoning, patient safety and a patient-centred approach. The "INSERT + CASE" technology provides a methodological basis for this shift: the INSERT strategy reveals and corrects misconceptions, case-based learning develops the ability to make justified decisions, and formative assessment with reflection consolidates the results. The proposed model, diagnostic algorithm, lesson plan and rubric can be used in practical classes of the nursing curriculum of medical technical colleges and adapted to other chronic diseases. Their effectiveness should be verified in a pilot study with pre- and post-testing.

References

1. World Health Organization. Rheumatoid arthritis: Fact sheet. — Geneva: WHO, 2023. — URL: https://www.who.int/news-room/fact-sheets/detail/rheumatoid-arthritis
2. Smolen J.S., Aletaha D., McInnes I.B. Rheumatoid arthritis // The Lancet. — 2016. — Vol. 388, No. 10055. — P. 2023–2038. DOI: 10.1016/S0140-6736(16)30173-8
3. National Institute for Health and Care Excellence. Rheumatoid arthritis in adults: management (NICE guideline NG100). — London: NICE, 2018 (updated 2020).
4. Aletaha D., Neogi T., Silman A.J. et al. 2010 Rheumatoid arthritis classification criteria: an American College of Rheumatology/European League Against Rheumatism collaborative

initiative // Arthritis & Rheumatism. — 2010. — Vol. 62, No. 9. — P. 2569–2581. DOI: 10.1002/art.27584
5. Smolen J.S., Edwards C.J., Konzett V. et al. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biologic disease-modifying antirheumatic drugs: 2025 update // Annals of the Rheumatic Diseases. — 2026. — Vol. 85, No. 6. — P. 991–1009. DOI: 10.1016/j.ard.2026.01.023
6. Bech B., Primdahl J., van Tubergen A. et al. 2018 update of the EULAR recommendations for the role of the nurse in the management of chronic inflammatory arthritis // Annals of the Rheumatic Diseases. — 2020. — Vol. 79, No. 1. — P. 61–68. DOI: 10.1136/annrheumdis-2019-215458
7. Vaughan J.L., Estes T.H. Reading and Reasoning Beyond the Primary Grades. — Boston: Allyn and Bacon, 1986.
8. Thistlethwaite J.E., Davies D., Ekeocha S. et al. The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME Guide No. 23 // Medical Teacher. — 2012. — Vol. 34, No. 6. — P. e421–e444. DOI: 10.3109/0142159X.2012.680939
9. Biggs J., Tang C. Teaching for Quality Learning at University. 4th ed. — Maidenhead: Open University Press, 2011.
10. Freeman S., Eddy S.L., McDonough M. et al. Active learning increases student performance in science, engineering, and mathematics // Proceedings of the National Academy of Sciences. — 2014. — Vol. 111, No. 23. — P. 8410–8415. DOI: 10.1073/pnas.1319030111