

The Clinical Value of ESR

Why ESR Testing Remains Important in Modern Clinical Practice

EXAMPLES OF CONDITIONS WHERE ESR HAS PROVEN CLINICAL VALUE:



- Monitoring chronic inflammatory conditions¹
- Diagnosis and monitoring of autoimmune diseases²
- Assessing subacute or chronic infections³
- Assessing fever of unknown origin⁴
- Assessing cancer-related situations⁵
- Assessing cardiovascular disease risk⁶

ESR CHARACTERISTIC

CORRESPONDING CLINICAL ADVANTAGE

 Measures cumulative inflammation over days and weeks ⁷	 Useful for monitoring chronic or subacute conditions ⁸
 Less sensitive to short-term fluctuations than CRP ⁸	 Monitoring chronic disease ⁸
 Systemic inflammation indicator ⁸	 Increased sensitivity to diffuse low-grade/subacute conditions ⁸

HOW IS ESR DIFFERENT THAN CRP?

 ESR	 CRP
A non-specific marker of inflammation that should be used with clinical examination and patient history	A non-specific marker of inflammation that should be used with clinical examination and patient history
Not recommended for screening asymptomatic individuals	Not recommended for screening asymptomatic individuals
Reflects the tendency of red blood cells to aggregate and settle more rapidly when there is increased protein (fibrinogen and other acute phase proteins) in the blood	A single acute phase protein synthesized by the liver
The original method of ESR testing was developed in 1921	Discovered in 1930 – started being used clinically in the 1950s
Requires whole blood	Requires serum or plasma
Rises within 24-48 after the onset of inflammation and normalizes weeks after inflammation is resolved	Rises within 4-6 hours after the onset of inflammation and normalizes 3-7 days after inflammation is resolved
Measures cumulative inflammation over time as proteins accumulate in the blood	Highly sensitive to acute changes and short term fluctuations
Often used for assessing chronic inflammatory conditions or detecting low grade inflammation	Often used for assessing acute inflammation
Widely available, inexpensive and fully automated	Widely available, inexpensive and fully automated

MODERN ESR TESTING:

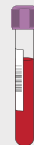
Once time-consuming and labor-intensive, ESR has been transformed into a fully automated, rapid test that does not require the resources needed for Westergren-based ESR testing



Fully automated



Results within 20 seconds



Small sample size with no special sample requirements

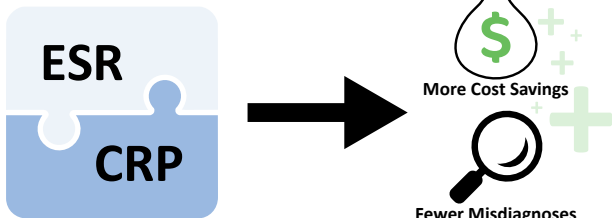


Low cost and widely available

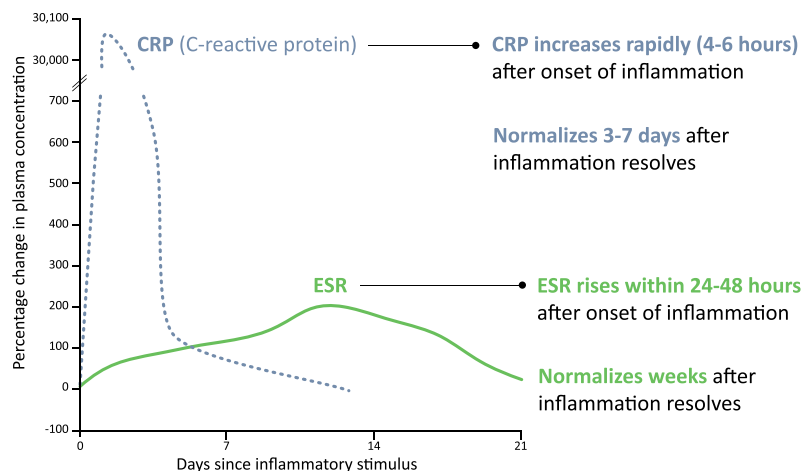
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Economic & Clinical Benefits of Combined ESR + CRP Testing

ESR and CRP are complementary, not interchangeable. Their different kinetic profiles provide additive clinical value when used together.⁸



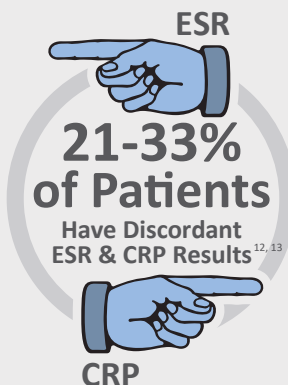
ESR AND CRP KINETICS⁸



ESR AND CRP DISCORDANCE CAN PROVIDE DIAGNOSTIC INSIGHTS

HIGH ESR, NORMAL CRP

- Connective tissue diseases (SLE)⁹
- Low-grade bone/joint infections⁹
- Ischemic stroke⁹
- Chronic inflammatory states/ low grade inflammation⁹
- Multiple myeloma & malignancies¹⁰



HIGH CRP, NORMAL ESR

- Acute infection inflammation (CRP rises first)⁹
- Myocardial infarction⁹
- Venous thromboembolism⁹
- Obesity (can also raise ESR)¹¹

NEW HEALTH ECONOMICS DATA

A peer-reviewed economic analysis evaluated combined ESR and CRP testing strategies versus CRP alone across 8 inflammatory conditions and grouped indications including rheumatoid arthritis, IBD, giant cell arteritis, periprosthetic joint infection, pancreatitis, infection, autoimmune disorders, and cancer.¹⁴

THE RIGHT STRATEGY MATTERS

ESR + CRP

RECOMMENDED - Reduces misdiagnoses and costs when used together correctly

CRP only

NOT RECOMMENDED - Increases misdiagnoses and cost

BOTTOM LINE:

Adding ESR to CRP testing costs us payers just \$2.70 per patient but reduces misdiagnoses and delivers significant cost savings. Modern fully automated ESR analyzers make combined testing fast, efficient, and cost-effective.¹³

\$2.70
Payer cost to add ESR test

\$9.95M¹³
Annual savings/
average sized hospital

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