

DIC Scoring System
International Society on Thrombosis and Hemostasis (ISTH)

Platelet count: > 100 0
 50-100 1
 < 50 2

Add the 4 Parameters for total score:
 Plt count, PT, fibrinogen and D-Dimer

PT: Prolongation
 < 3 sec 0
 > 3 sec - < 6 1
 > 6 sec 2

Interpretation of score:
 ≥ 5 – laboratory evidence consistent with overt DIC
 < 5 – cannot exclude low grade/chronic DIC

Fibrinogen:
 > 1 g/L=>100 mg/dl .. 0
 < 1 g/L 1

Using cut off 5
 93% sensitive
 98% specific for DIC

D-Dimer – No increase 0
 Moderate increase 2
 Marked increase 3

Normal – 0.5 [0.59 according to Siemens package insert]

Notes for DIC panel scoring system:

D-Dimer single best test for acute and chronic DIC.
 Normal D-Dimer rules out DIC.

D-Dimer ranges:

< 0.5	normal controls:	(<0.59 Siemens Innovance Assay)
Average 1.2	95% - 2.6	Hospitalized patients without DIC with normal PT/PTT/no diagnosis of cancer/sepsis/VTE/PE
	96% - 3.9	

Average 2.0	95% - 27	Hospitalized patients with cancer without clinical DIC
	99% - 30	

Average 21.7	range to 160	In-patients with clinical history consistent with DIC
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Score 3 for D-Dimer >8.2 ug/ml (Reference: *1)
 Given cut off > 8.2 ug/ml
 Sensitivity = 0.96
 Specificity = 0.93
 Negative predictive value = 0.99 {given a prevalence of 20%}
 Positive predictive value = 0.71 {given a prevalence of 20%}

Suggest D-Dimer >4 and <8 ug/ml = score 2

However, cut off values need to be assay specific (Siemens package insert highlights clinical validation studies for PE and VTE, but not DIC).
 "It is left to the individual laboratory to define D-Dimer cut off values for use in the ISTH scoring system." (Reference *1)

Chronic DIC, most frequently seen in cancer patient's: thrombosis may predominate and PT/PTT and fibrinogen may be normal, e.g., Trousseau's syndrome (migratory thrombosis). Schistocytes and high D-Dimer may be the only laboratory support.

Schistocytes: less than 1% 1-5% 6-10% 10-25% >25% Schistocytes are neither sensitive nor specific for DIC
 0 1+ 2+ 3+ 4+

Fibrinogen might not be decreased until severe DIC since it is an acute phase reactant.
 Prolongation of PT scoring is preferably in the absence of liver disease.

ISTH definition of DIC is "an acquired syndrome characterized by intravascular activation of coagulation with loss of localization arising from different causes."

The diagnosis of DIC requires the following three:

1. An underlying disorder known to be associated with DIC.
2. Clinical findings consistent with DIC.
3. Laboratory findings.

DIC is a complication secondary to an underlying disorder. The ISTH scoring system is recommended only for those having conditions associated with DIC. The most common causes are cancer and sepsis; but also include less commonly obstetric complications (amniotic fluid embolism, abruptio placenta, HELLP's syndrome/eclampsia, retain dead fetus syndrome), organ failure, trauma (especially brain); rarely heat stroke/hyperthermia; severe toxic reaction such as severe transfusion reactions, transplant rejection, venomous bites and other rare conditions.

Clinical features: bleeding and/or thrombosis, especially if more than one site, organ dysfunction (kidney, liver, lung, CNS), shock, fever.

Frequency estimated 1% of all hospitalized patients.

*1 – Lehman et al. Analytic Validation and Clinical Evaluation of the STA LIA TEST Immunoturbidimetric D-Dimer Assay for the Diagnosis of Disseminated Intravascular Coagulation. American Journal of Clinical Pathology. 2004;122.

*2 – Taylor FB Jr, Toh CH, Hoots WK, et al, and the Scientific Subcommittee on Disseminated Intravascular Coagulation (DIC) of the International Society on Thrombosis and Haemostasis (ISTH). Towards definition, clinical and laboratory criteria, and a scoring system for disseminated intravascular coagulation. Thromb Haemost. 2001;86:1327-1330.