Disseminated Intravascular Coagulation

DIC · Always secondary — find the trigger, support the patient

TREAT THE CAUSE
nothing else is definitive

WHAT IT IS *consumption and clotting at the same time*

THE MECHANISM

Systemic activation of coagulation causes **widespread microvascular thrombosis**, which **consumes platelets and clotting factors**, producing **bleeding**. Secondary fibrinolysis adds to it. The patient can be clotting and bleeding simultaneously.

THE TRIGGERS — ALWAYS LOOK

Sepsis (commonest) · **major trauma** and burns · **malignancy**, especially **acute promyelocytic leukemia** · **obstetric** emergencies (abruption, amniotic fluid embolism, HELLP) · severe pancreatitis · transfusion reaction · snake envenomation · heat stroke.

THE LABS

Falling platelets · **prolonged PT and aPTT** · **low fibrinogen** · **markedly raised D-dimer** · schistocytes on the film. **Trend them** — the direction of travel matters more than any single value.

SCORE IT *ISTH overt DIC score — a score of 5 or more is compatible with overt DIC*

Parameter	Value	Points
Platelet count	≥ 100 ×10⁹/L · 50–100 · < 50	0 · 1 · 2
D-dimer / fibrin marker	No rise · moderate rise · strong rise	0 · 2 · 3
Prolongation of PT	< 3 s · 3–6 s · > 6 s	0 · 1 · 2
Fibrinogen	≥ 100 mg/dL · < 100 mg/dL	0 · 1

Only apply the score when there is an underlying condition known to be associated with DIC. If the score is under 5, it may be non-overt DIC — repeat the panel in 24–48 hours rather than dismissing it. **Fibrinogen is an acute-phase reactant**, so a "normal" value in a septic patient may already represent a substantial fall.

MANAGE IT *support is guided by phenotype and bleeding, not by numbers alone*

1. **Treat the underlying cause aggressively — this is the only definitive therapy.** Source control and antibiotics for sepsis, delivery for obstetric DIC, ATRA for APL. Blood products buy time; they do not treat DIC.
2. **Do not transfuse to correct numbers in a non-bleeding patient.** Product support is for **active bleeding** or before an invasive procedure. Reflex correction of an abnormal panel adds volume and risk without benefit.
3. **If bleeding: platelets** for a count under about 50 ×10⁹/L (under 20 if not bleeding but at high risk), **fresh frozen plasma** for significantly prolonged PT/aPTT, and **cryoprecipitate or fibrinogen concentrate** for **fibrinogen under 150 mg/dL**.
4. **If the phenotype is thrombotic** — purpura fulminans, digital ischemia, venous thromboembolism — use **therapeutic or prophylactic heparin**. All immobilized patients with DIC should have **VTE prophylaxis** unless actively bleeding.
5. **Repeat the panel every 6–12 hours** while unstable. DIC is a moving target, and the trend tells you whether the underlying treatment is working.

TWO SPECIAL CASES *where the usual rules change*

ACUTE PROMYELOCYTIC LEUKEMIA

A hematological emergency. Severe DIC with **hyperfibrinolysis** and a high early death rate from hemorrhage, especially intracranial. **Start ATRA immediately on clinical suspicion**, before cytogenetic confirmation. Support aggressively: **platelets above 30–50** and **fibrinogen above 150 mg/dL**. Avoid invasive procedures until corrected.

OBSTETRIC DIC

Onset is often abrupt and severe — abruption, amniotic fluid embolism, retained products, HELLP. **Definitive treatment is delivery and uterine evacuation.** Fibrinogen rises in pregnancy, so a value in the "normal" range may be dangerously low; use pregnancy-adjusted thresholds and involve obstetric hematology early.

DISTINGUISH IT FROM THE MIMICS *several conditions share the picture but need opposite treatment*

Condition	What separates it from DIC
TTP	**Coagulation studies are normal** — normal PT, aPTT and fibrinogen with schistocytes and profound thrombocytopenia. Treatment is **plasma exchange**, and plasma or platelet transfusion is not the answer.
Liver failure	Prolonged PT and low platelets, but **factor VIII is normal or high in liver disease and low in DIC** (it is consumed). D-dimer rises less dramatically. Splenomegaly and stigmata of chronic liver disease point away from DIC.
Dilutional coagulopathy	After massive transfusion or large-volume crystalloid. **D-dimer is not markedly raised**, and the history makes it obvious. Treat with targeted product replacement.
HIT	**Thrombosis with a normal fibrinogen** and a platelet fall 5–10 days into heparin exposure. Bleeding is unusual. Score with the 4Ts and stop all heparin.
Primary hyperfibrinolysis	Low fibrinogen and bleeding but **platelets relatively preserved**. Seen in prostate disease and some malignancies, and it is one of the few settings where antifibrinolytics are appropriate.

WHAT TO ORDER AND WHEN *a practical panel*

THE PANEL

Complete blood count with film · **PT, aPTT, fibrinogen, D-dimer** · renal and liver function · lactate and blood gas. Add **factor VIII** if liver disease is the competing diagnosis, and a **blood film for schistocytes** if a microangiopathy is possible.

THE RHYTHM

Repeat every 6–12 hours while unstable, and after each significant transfusion. A rising platelet count and fibrinogen with a falling D-dimer means the underlying cause is being controlled — that trend is the best bedside marker that your treatment is working.

PEARLS & PITFALLS

- **DIC is never a primary diagnosis.** If you have made it and cannot name the trigger, you have not finished the workup.
- **A normal fibrinogen does not exclude DIC** in sepsis or pregnancy — it is an acute-phase reactant and should be high.
- **Do not chase the numbers** in a non-bleeding patient. Transfuse for bleeding or for procedures.
- **Suspected APL means ATRA now**, not after the cytogenetics return. Delay costs lives to intracranial hemorrhage.
- **Antifibrinolytics are generally avoided** in DIC, since they can worsen microvascular thrombosis, except in defined hyperfibrinolytic states.
- **Give VTE prophylaxis** to the non-bleeding DIC patient — the thrombotic risk is real and frequently forgotten.

References: ISTH scoring system for overt DIC · BSH guideline on the diagnosis and management of DIC · ISTH guidance on DIC in sepsis and malignancy.

Educational aid; verify against local hematology protocol and patient factors.