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FIGURE 1 – Rapid Cycle Plan-Do-Study-Act methodology [16]

**FIGURE 2 - Integration of prognostic screening tool and development of supportive care intervention using rapid-cycle PDSA methodology**

**INTEGRATION OF PROGNOSTIC SCREENING INTO ROUTINE ASSESSMENT**

- **PLAN/DO:** Staff informed of prognostic criteria, and criteria displayed on wall chart
  - **STUDY/ACT:** Prognostic scoring not routinely considered or completed following random audit

- **PLAN/DO:** Prognostic screening added to agenda for discussion at weekly hepatology MDT
  - **STUDY/ACT:** Junior staff not confident in completing scoring (e.g. uncertainty re performance score)

- **PLAN/DO:** Objective guidelines for scoring printed as single sheet and made available to junior staff
  - **STUDY/ACT:** Inconsistent documentation of discussions

- **PLAN/DO:** MDT proforma with integrated prognostic screening (completion guidelines on back)
  - **STUDY/ACT:** Nursing staff - difficulty locating documentation within large volumes of medical notes

- **PLAN/DO:** MDT proforma sheets coloured blue so easily identified
  - **STUDY/ACT:** MDT documentation mass printed and completed for each patient during MDT

- **PLAN/DO:** Prognostic screening and MDT documentation standardised for hepatology inpatients
  - **STUDY/ACT:** Random audit demonstrated completion rate of 89%. Proforma adopted.

**PDSA CYCLE**

1. **PLAN/DO:** Introduction of prognostic screening identified inpatients with poor prognosis
   - **STUDY/ACT:** Patients/families not routinely informed of prognosis or stage of disease prior to discharge

2. **PLAN/DO:** Consultant discussion with patient & family prior to discharge when criteria met
   - **STUDY/ACT:** Difficult conversations surrounding uncertain trajectory in a complex patient group

3. **PLAN/DO:** Objective guidelines for scoring printed as single sheet and made available to junior staff
   - **STUDY/ACT:** Inconsistent documentation of discussions

4. **PLAN/DO:** MDT proforma with integrated prognostic screening (completion guidelines on back)
   - **STUDY/ACT:** Nursing staff - difficulty locating documentation within large volumes of medical notes

5. **PLAN/DO:** MDT proforma sheets coloured blue so easily identified
   - **STUDY/ACT:** MDT documentation mass printed and completed for each patient during MDT

6. **PLAN/DO:** Prognostic screening and MDT documentation standardised for hepatology inpatients
   - **STUDY/ACT:** Random audit demonstrated completion rate of 89%. Proforma adopted.

**DEVELOPMENT OF SUPPORTIVE CARE INTERVENTION**

- **PLAN/DO:** Communication skills training delivered to hepatology staff by palliative care team
  - **STUDY/ACT:** GPs not routinely involved or included in discussions & unaware of progression

- **PLAN/DO:** Palliative care consultation offered to patients with complex symptomatic/psychosocial needs + links to community services and opportunities for advance care planning
  - **STUDY/ACT:** Difficulties with continuity of care following discharge

- **PLAN/DO:** Hepatology specialist nurse allocated for each patient, with contact details made available
  - **STUDY/ACT:** Above features combined and formalised as the ‘supportive care intervention’

**POOR PROGNOSIS SCREENING CRITERIA FOR INPATIENTS WITH CIRRHOSIS**

- Childs Pugh C
- > 2 liver related admissions last 6/12
- Ongoing alcohol use in known ArLD
- Currently unsuitable for transplantation
- WHO performance status 3-4

**SCORE ≥ 3**

**SUPPORTIVE CARE INTERVENTION**

- Consultant led poor prognosis discussion
- Poor prognosis letter to GP
- Opportunity for advance care planning
- Specialist palliative care review if complex symptomatic/social/psychological needs
- Allocation of hepatology specialist nurse

FIGURE 3 - Integration of prognostic screening into weekly hepatology MDT proforma, completed weekly for each hepatology inpatient at University Hospitals Bristol Trust (front and reverse of sheet)