American Journal of
Anesthesia & Clinical Research

Mini Review

Checklist Proformas to Guide and Document the Assessment of Critically Ill Patients: A Tool to Standardize Assessment and Minimise Diagnostic Error -

Rajkumar Rajendram[1,2]

[1]*Department of Medicine, King Abdulaziz Medical City, Ministry of National Guard - Health Affairs Riyadh, Saudi Arabia*

[2]*Joint Appointment Assistant Professor of Medicine, College of Medicine, King Saud bin Abdulaziz University of Health Sciences, Riyadh, Saudi Arabia*

***Address for Correspondence:** Rajkumar Rajendram, Department of Medicine, King Abdulaziz Medical City, Ministry of National Guard - Health Affairs, Riyadh, Saudi Arabia, E-mail: rajkumarrajendram@doctors.org.uk

Submitted: 10 January 2020; **Approved:** 11 February 2020; **Published:** 14 February 2020

Cite this article: Rajendram R. Checklist Proformas to Guide and Document the Assessment of Critically Ill Patients: A Tool to Standardize Assessment and Minimise Diagnostic Error. Am J Anesth Clin Res. 2020;6(1): 001-010.

ISSN: 2640-5628

ISSN: 2640-5628

ABSTRACT

The assessment, diagnosis and treatment of critically ill patients is extremely challenging. Patients often deteriorate whilst being reviewed and their rapidly changing pathophysiology barrages healthcare professionals with new data. Furthermore, comprehensive assessments must be postponed until the patient has been stabilised. So, important data and interventions are often missed in the heat of the moment. In emergency situations, suboptimal management decisions may cause significant morbidity and mortality. Fortunately, standardisation and careful design of documentation (i.e. proformas and checklists) can enhance patient safety. So, I have developed a series of checklist proformas to guide the assessment of critically ill patients. These proformas also promote the systematic recording and presentation of information to facilitate the retrieval of the precise data required for the management for critically ill patients. The proformas have been modified extensively over the last twenty years based on my personal experience and extensive consultation with colleagues in several world-renowned centres of excellence. The proformas were originally developed for use in the intensive therapy unit or high dependency unit. However, they have been adapted for use by outreach teams reviewing patients admitted outside of critical care areas. The use of these tools can direct efforts to provide appropriate organ support and provides a framework for diagnostic reasoning.

Keywords: Assessment; Diagnosis; Critical care outreach services (CCOS); Critical illness; Documentation; Medical emergency teams (METs)

ABBREVIATIONS

The abbreviations used on the proformas are in common use in UK clinical practice. However, I have listed them here so that those wishing to use the forms can ensure that their teams are familiar with these abbreviations or can modify them as necessary. aPTT: activated Partial Thromboplastin Time; AP: Airway Pressure; Alb: Albumin; ALT: Alanine Transaminase; Alk P: Alkaline Phosphatase; $PaCO_2$: Arterial Partial Pressure of Carbon Dioxide; PaO_2: Arterial Partial Pressure of Oxygen; AST: Aspartate Transaminase; BE: Base Excess; HCO_3: Bicarbonate; bili: Bilirubin; BIOCHEM: Biochemistry; BP: Blood Pressure; BNP: Brain Natriuretic Peptide; CRT: Capillary Refill Time; CI: Cardiac Index; CO: Cardiac Output; $ScvO_2$: Central Venous Oxygen Saturation; CVP: Central Venous Pressure; CXR: Chest X-Ray; CRP: C-Reactive Protein; CK: Creatine Kinase; DVT: Deep Vein Thrombosis; DERM: Dermatology; Echo: Echocardiogram; ECG: Electrocardiograph; ET CO_2: End Tidal Carbon Dioxide; EPAP: Expiratory Positive Airway Pressure; fibrino: Fibrinogen; FTC: Flow Time Corrected for Heart Rate; Fluid Bal: Fluid Balance; FiO_2: Fraction of Inspired Oxygen; GGT: Gamma-Glutamyl Transferase; GAST RES: Gastric Residual; GCS: Glasgow Coma Score; Gluc: Glucose; HAEM: Haematology; Hb: Haemoglobin; HR: Heart Rate; T_{max} °C: Highest temperature in the preceding 24 hours; $HFNO_2$: High Flow Nasal Oxygen; IPAP: Inspiratory Positive Airway Pressure; INR: International Normalised Ratio; IPPV: Invasive Positive Pressure Ventilation; JVP: Jugular Venous Pressure; LL: Lower Limb; MAP: Mean Arterial Pressure; MICRO: Microbiology; MODE: Mode of Ventilatory Support; MSK: Musculoskeletal; NG: Nasogastric Tube; NBM: Nil By Mouth; po: Per Os; NIV: Non-Invasive Ventilation; SpO_2: Oxygen Saturation; plt: Platelets; PCT: Procalcitonin; PT: Prothrombin Time; PPI: Proton Pump Inhibitor; RRT: Renal Replacement Therapy; RR: Respiratory Rate; SV: Stroke Volume; SVV: Stroke Volume Variation; SVR: Systemic Vascular Resistance; SVRI: Systemic Vascular Resistance Index; Temp: Temperature; TV: Tidal volume (TV); UL: Upper limb.

INTRODUCTION

The assessment and treatment of critically ill patients is extremely challenging. Patients are often deteriorating whilst being reviewed and their rapidly changing pathophysiology generates torrential amounts of new diagnostic data. The management of critically ill patients involves initial resuscitation (supportive therapy and treatment of the primary critical illness), stabilisation, monitoring and prevention of complications of critical illness [1]. To achieve this effectively requires a thorough assessment and analysis of a patient's situation [1]. Critical care physicians and the allied healthcare professionals that form critical care teams will, therefore, ultimately spend vast amounts of time extracting, reviewing, assimilating and recording clinical information in hospital case notes.

Supportive care

The clinician must aggressively support the airway, oxygenation, ventilation, and circulation to allow the patient time to recover from the initial insults [1]. This involves resuscitation, but also requires frequent manipulation of organ support in response to changes in the patient's status [1].

Treatment of primary critical illnesses

The primary problems that led to the ITU admission (e.g. sepsis) must be treated [1]. For most patients admitted to hospital, a standard problem list with differential diagnoses, diagnostic workup, and therapeutic plans is sufficient [1]. However, in critically ill patients with multisystem disease, a systematic, head-to-toe approach facilitates the compartmentalisation and organisation of this plan [1].

Assessment of critically ill patients

As in all patients admitted to hospital; vital signs (i.e. mental state, oxygen saturation, respiratory rate, heart rate, blood pressure, temperature, urine output) and physical examination are fundamental in the assessment of the critically ill patients [1]. In addition, several other biomarkers (e.g. lactate) and monitors (e.g. end tidal carbon dioxide and cardiac output monitoring) are often used to detect organ dysfunction [1]. More recently, point of care ultrasound has revolutionised the bedside assessment of deteriorating patients.

However, comprehensive assessments (i.e. detailed chart review, collateral history, head-to-toe physical examination and tomographic imaging) must be deferred until the patient has been stabilised. So, despite not having all the facts; critical care teams must 'fix' physiological derangements whilst resolving the diagnostic dilemmas posed by the deteriorating patient. This constant task

ISSN: 2640-5628

switching increases the risk of error at a time when the consequences of 'dropping the ball' can be catastrophic [2].

Errors in patient assessment and diagnosis in critical care

Critical care teams begin their assessments after other clinicians have already seen the patient and attached diagnostic labels. This diagnostic momentum strongly biases subsequent evaluations [3]. Errors may be perpetuated by the way cases are presented to critical care teams in handovers from emergency the department or the medical ward.

These errors are magnified under stressful situations when critical care teams may neglect fundamental aspects of patient assessment and treatment. As a result, important data is often omitted in emergency situations [4,5]. This is at least partly because data entry and collection is not standardized. So, in emergencies, rapid retrieval of crucial data documented by other healthcare professionals is difficult.

Deficiencies in the assessment of critically ill patients greatly increase the risk of diagnostic error. The subsequent consequences of suboptimal therapeutic management decisions results in significant morbidity and mortality. Fortunately, careful design of documentation (i.e. proformas and checklists) and systematic presentation of clinically relevant data can enhance patient safety [6]. As a result, healthcare systems have embraced the use of checklists to ensure that crucial details are not forgotten completely in the heat of the moment. Indeed, several studies have demonstrated that the use of checklists in Intensive Therapy Units (ITU) can improve patient outcomes [7,8].

ICU preventive care

The complete approach to a critically ill patient includes ICU preventive care, which is analogous to primary prevention in the general population [1]. Measures to prevent nosocomial infection (e.g. raising the head of the bed of a ventilated patient to at least 30 degrees), prophylaxis against development of stress ulceration of the gastrointestinal tract and strategies to prevent deep venous thrombosis should be considered [1].

Checklist proformas for the assessment of critically ill patients

So, I have developed a series of checklist proformas to guide the assessment and treatment of critically ill patients in various clinical care settings. These proformas were originally designed for use with patients admitted in ITUs (Figure 1) and high dependency units (Figure 2). However, they have been adapted for use by outreach teams reviewing patients admitted outside of critical care areas (Figure 3). These proformas facilitate the recording and retrieval of key data for critically ill patients. This can direct efforts to initiate appropriate organ support and provides a framework for diagnostic reasoning.

Evolution of the proformas

The proformas have been modified extensively over the last twenty years based on my personal experience and extensive consultation with colleagues in several centres of excellence throughout the world. These centres include Queen Mary's Hospital, Sidcup, UK; Oxford University Hospitals, UK; Royal Free London Hospitals, UK; University College Hospital, London, UK; The Lister Hospital, Stevenage, UK; Royal London Hospital, UK; Queen's Hospital, Romford, UK; Royal Brompton Hospital, London, UK; Royal National Orthopaedic Hospital, Stanmore, UK; Victoria Hospital, Kirkaldy, UK; Stoke Mandeville Hospital, Aylesbury, UK; King Khalid University Hospital, King Saud University Medical City, Riyadh, Saudi Arabia; King Abdulaziz Medical City, Riyadh, Saudi Arabia and St Helena General Hospital, St Helena. Various versions of these proformas are currently being used in many of these centres.

Differences between the ITU, HDU and CCOT proformas

The differences between the forms reflect the situations in which they are intended to be used. The HDU and ITU proformas guide a comprehensive systematic assessment of critically ill patients admitted within critical care areas. The forms designed for HDU and ITU are essentially interchangeable. However, patients in HDU will not be receiving invasive mechanical ventilation and generally will not require cardiac output monitoring.

The ITU form is similar to the HDU form with the addition of dedicated boxes for invasive ventilation, peak airway pressure (rather than inspiratory positive airway pressure) and data from cardiac output monitoring (e.g. oesophageal Doppler). Boxes for data which can only be obtained reliably from a pulmonary artery catheter (PAC; i.e. pulmonary artery pressure and pulmonary capillary wedge pressure) were deliberately omitted as PAC are rarely used in current practice.

Patients outside of critical care areas being assessed by CCOT are likely to be deteriorating. In routine UK practice, this cohort of patients will not yet be receiving advanced organ support. These patients require careful assessment for the cause as well as the effects of organ dysfunction. In this cohort the likelihood of diagnostic error is high. So, the CCOT form is similar to the HDU form but also contains dedicated space for measurements of Creatine Kinase (CK), Brain Natriuretic Peptide (BNP), troponin, amylase and D-dimers. These aide memoires remind the CCOT to consider myocardial infarction, heart failure, pancreatitis and pulmonary embolism as potential causes of organ dysfunction. The CCOT team must also provide a clear plan for patient disposition (i.e. admit to HDU / ITU; CCOT follow up or sign off). This has therefore been included on the proforma. The box for End Tidal Carbon Dioxide (ET CO_2) measurement was removed as this monitoring is rarely used outside of critical care settings.

CONCLUSION

Well-designed assessment documents (i.e. proformas and checklists) can reduce the workload of critical care teams whilst improving the quality and quantity of data recording and the ease of data retrieval. I am happy for other critical care teams to use the assessment proformas presented in this paper in hospitals throughout the world. However, it is important to recognise that constant feedback from junior and senior clinicians is required to refine the proformas. The effectiveness of the proformas can be greatly enhanced by minor changes to the format. It is therefore important to modify the documentation (Figures 1-3) for local use.

ISSN: 2640-5628

This space has been left blank for insertion of a hospital logo

Name: .....
MRN: .....
Sex: ..... D.O.B.: .....

ITU Patient Daily Assessment Sheet

Date/Time: ..... **ITU Day:** ..... **Ceiling of Therapy:** ..... **DNAR:** .....

Condition:	**Diagnosis/Impression:** ☐ **Causes of treatment failure considered if patient is not improving**

ASSESSMENT SECTION

NEUROLOGY / EYES

GCS: /15 E ( ) V ( ) M ( )

Pupils: R L

Mental State: **Sedation Score:** **Delirium Score:**

Motor Power: UL (/ 5) LL (/ 5)

Pain Sites / Score:

Other neurology:

Rehabilitation pathway:

Analgesia / Sedation:

Imaging:

RESPIRATORY

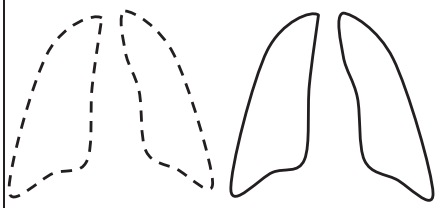
Airway: **Days on HFNO2 / NIV / IPPV:**

Ventilation

SpO_2	FiO_2	MODE	PEEP	Peak AP	TV RR
					/

ABG Date & Time

Oxygenation		Ventilation		Acid Base		
PaO_2	PaO_2/FiO_2	Pa CO_2	ET CO_2	pH	HCO_3	BE



Examination CXR

Ultrasound:

Secretions:

CARDIAC

Last Vital Signs

HR / Rhythm	BP / MAP	CRT	CVP / JVP	Heart Sounds

Cardiac Output Monitoring

CO / CI	SV / SVV	SVR / SVRI	FTC	Impression / Echo

Perfusion Fingers/Toes:

Oedema:

Lactate: **$ScvO_2$:**

ECG:

Cardiac / vasoactive medication:

FLUID BALANCE / RENAL / GI TRACT

NG

Feed: NBM / PO / NG / TPN

Glucose:

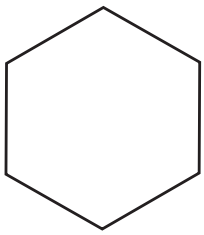
Sounds:

GAST RES:

Bowels Opened:

Urinary Catheter:

Urine Dip:



Ultrasound:

Fluid Balance Yesterday

Input Today	Output Today
Crystalloid:	**Urine:** / /
	☐ **Diuretics**
Colloid:	☐ **RRT**
Blood:	**Drains:**
	Other:

Ultrasound:

Figure 1: ITU patient assessment proforma.

ISSN: 2640-5628

This space has been left blank for insertion of a hospital logo

Name: .....

MRN: .....

Sex: ..... D.O.B.: .....

BIOCHEM / HAEM / MICRO

Na^+	K^+	Mg^{2+}	Ca^{2+}	PO_4^{2-}	Cl^-	Urea	Creat	Alb	Bili	AST ALT	Alk P GGT	Gluc
										/	/	

Hb	Plt	PT INR	aPTT	Fibrino.	WBC Neut	Lymph Eosin	CRP PCT	T Max °C
		/			/	/	/	

Positive Cultures - Date / Source / Organism

Antibiotic / Days / Level

Line Site Day/State Keep

Microbiology Team Review

DERM / MSK

☐ **Pressure areas intact?** *If Not document site & stage of pressure sores*

DRUG CHART

☐ **Medication Review (Record Changes):**

Allergies:

CARE BUNDLE

☐ **DVT Prophylaxis?** *If No Why?*_____ **Vein Ultrasound** _____

☐ **Head Elevation 30°?** *If No Why?*_____

☐ **PPI / Full Enteral Nutrition?** *If No Why?*_____

ACTIVE PROBLEMS

Comorbidities:

MANAGEMENT PLAN

TARGETS	Plan	Comment
SpO_2 PaO_2 $PaCO_2$ MAP pH Urine Fluid Bal Temp Glucose Hb K^+ Mg^{2+} Na^+ Ca^{2+}		

Trainee Name, Signature & Pager	Consultant Name, Signature & Telephone Number	Nurse Name & Signature

Figure 1: ITU patient assessment proforma.

ISSN: 2640-5628

This space has been left blank for insertion of a hospital logo

Name: .....
MRN: .....
Sex: ..... D.O.B.: .....

HDU Patient Daily Assessment Sheet

Date/Time: ..... **HDU Day:** ..... **Ceiling of Therapy:** ..... **DNAR:** .....

Condition:	**Diagnosis/Impression:** ☐ **Causes of treatment failure considered if patient is not improving**

ASSESSMENT SECTION

NEUROLOGY / EYES

Glasgow Coma Score: /15 E ( ) V ( ) M ( )

Pupils: R L

Mental State:

Delirium Score:

Motor Power: UL (/ 5) LL (/ 5)

Pain Sites / Score:

Other neurology:

Rehabilitation pathway:

Analgesia / Sedation:

Imaging:

RESPIRATORY

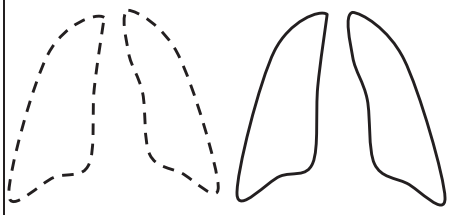
Airway: **Days on HFNO2 / NIV:**

Ventilation

SpO_2	FiO_2	MODE	EPAP	IPAP	TV RR
					/

ABG Date & Time

Oxygenation		Ventilation		Acid Base		
PaO_2	PaO_2/FiO_2	Pa CO_2	ET CO_2	pH	HCO_3	BE



Examination **CXR**

Ultrasound:

Secretions:

CARDIAC

Last Vital Signs

HR / Rhythm	BP / MAP	CRT	CVP / JVP	Heart Sounds

Perfusion Fingers/Toes:

Oedema:

Lactate: **$ScvO_2$:**

Cardiac / vasoactive medication:

ECG:

Echo:

FLUID BALANCE / RENAL / GI TRACT

NG

Feed: NBM / PO / NG / TPN

Glucose:

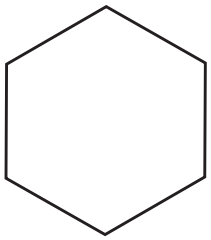
Sounds:

GAST RES:

Bowels Opened:

Urinary Catheter:

Urine Dip:



Ultrasound:

Fluid Balance Yesterday

Input Today	Output Today
Crystalloid:	**Urine:** / /
	☐ **Diuretics**
Colloid:	☐ **RRT**
Blood:	**Drains:**
	Other:

Ultrasound:

Figure 2: HDU patient assessment proforma.

ISSN: 2640-5628

This space has been left blank for insertion of a hospital logo

Name: .....
MRN: .....
Sex: ..... D.O.B.: .....

BIOCHEM / HAEM / MICRO

Na^+	K^+	Mg^{2+}	Ca^{2+}	PO_4^{2-}	Cl^-	Urea	Creat	Alb	Bili	AST ALT	Alk P GGT	Gluc
										/	/	

Hb	Plt	PT INR	aPTT	Fibrino.	WBC Neut	Lymph Eosin	CRP PCT	T Max °C
		/			/	/	/	

Positive Cultures - Date / Source / Organism | ***Line Site Day/State Keep***

Antibiotic / Days / Level | ***Microbiology Team Review***

DERM / MSK

☐ **Pressure areas intact?** *If Not document site & stage of pressure sores*

DRUG CHART

☐ **Medication Review (Record Changes):** | ***Allergies:***

CARE BUNDLE

☐ **DVT Prophylaxis?** *If No Why?*_____ **Vein Ultrasound** _____
☐ **Head Elevation 30°?** *If No Why?*_____
☐ **PPI / Full Enteral Nutrition?** *If No Why?*_____

ACTIVE PROBLEMS

Comorbidities:

MANAGEMENT PLAN

TARGETS	Plan	Comment
SpO_2 PaO_2 $PaCO_2$ MAP pH Urine Fluid Bal Temp Glucose Hb K^+ Mg^{2+} Na^+ Ca^{2+}		

Trainee Name, Signature & Pager	Consultant Name, Signature & Telephone Number	Nurse Name & Signature

Figure 2: HDU patient assessment proforma.

ISSN: 2640-5628

This space has been left blank for insertion of a hospital logo

Name: .....
MRN: .....
Sex: ..... D.O.B.: .....

Critical Care Outreach Team Patient Assessment Sheet

Date/Time: ..... **Date of Admission:** ..... **Ceiling of Therapy** ..... **DNAR:** .....

Condition:

Diagnosis/Impression:

☐ **Causes of treatment failure considered**

ASSESSMENT SECTION

NEUROLOGY / EYES

GCS: /15 E ( ) V ( ) M ( )

Pupils: R L

Mental State:

Delirium Score:

Motor Power: UL (/ 5) LL (/ 5)

Pain Sites / Score:

Other neurology:

Rehabilitation pathway:

Analgesia / Sedation:

Imaging:

RESPIRATORY

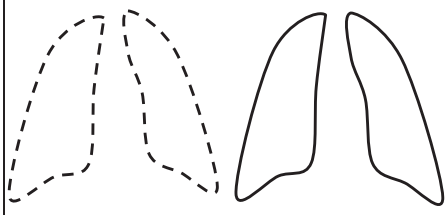
Airway: **Days on HFNO2 / NIV:**

Ventilation

SpO_2	FiO_2	MODE	EPAP	IPAP	TV RR
					/

ABG Date & Time

Oxygenation		Ventilation		Acid Base	
PaO_2	PaO_2/FiO_2	Pa CO_2	pH	HCO_3	BE



Examination **CXR**

Ultrasound:

Secretions:

CARDIAC

Last Vital Signs

HR / Rhythm	BP / MAP	CRT	CVP / JVP	Heart Sounds

ECG:

Troponin:

CK:

Echo:

BNP:

Perfusion Fingers/Toes:

Oedema:

Lactate: **$ScvO_2$:**

Cardiac / vasoactive medication:

FLUID BALANCE / RENAL / GI TRACT

NG

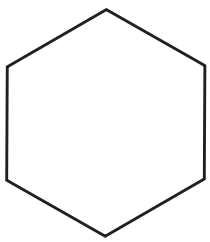
Feed: NBM / PO / NG / TPN

Glucose:

Sounds:

GAST RES:

Bowels Opened:



Ultrasound:

Urinary Catheter:

Urine Dip:

Amylase:

Fluid Balance Yesterday

Input Today	Output Today
Crystalloid:	**Urine:** / /
	☐ **Diuretics**
Colloid:	☐ **RRT**
Blood:	**Drains:**
	Other:

Ultrasound:

Figure 3: CCOT patient assessment proforma.

ISSN: 2640-5628

This space has been left blank for insertion of a hospital logo

Name: .....
MRN: .....
Sex: ..... D.O.B.: .....

BIOCHEM / HAEM / MICRO

Na^+	K^+	Mg^{2+}	Ca^{2+}	PO_4^{2-}	Cl^-	Urea	Creat	Alb	Bili	AST ALT	Alk P GGT	Gluc
										/	/	

Hb	Plt	PT INR	aPTT	D-Dimer Fibrino.	WBC Neut	Lymph Eosin	CRP PCT	T Max °C
		/		/	/	/	/	

Positive Cultures - Date / Source / Organism

Antibiotic / Days / Level

Line Site Day/State Keep

Microbiology Review

DERM / MSK

☐ **Pressure areas intact?** *If Not document site & stage of pressure sores*

DRUG CHART

☐ **Medication Review (Record Changes):**

Allergies:

CARE BUNDLE

☐ **DVT Prophylaxis?** *If No Why?*_____ **Vein Ultrasound**_____

☐ **Head Elevation 30º?** *If No Why?*_____

☐ **PPI / Full Enteral Nutrition?** *If No Why?*_____

ACTIVE PROBLEMS

Comorbidities:

MANAGEMENT PLAN

TARGETS	Plan	Comment
SpO_2 PaO_2 $PaCO_2$ MAP pH Urine Fluid Bal Temp Glucose Hb K^+ Mg^{2+} Na^+ Ca^{2+}	☐ **Admit to HDU / ITU** ☐ **CCOT follow up** ☐ **Sign off**	

Trainee Name, Signature & Pager	Consultant Name, Signature & Telephone Number	Nurse Name & Signature

Figure 3: CCOT patient assessment proforma.

ISSN: 2640-5628

REFERENCES

1. Rodriguez R, Hern HG Jr. An approach to critically ill patients. West J Med. 2001; 175: 392-395. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/11733431
2. Monsell S. Task switching. Trends Cogn Sci. 2003; 7: 134-140. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/12639695
3. Croskerry P. Achieving quality in clinical decision making: cognitive strategies and detection of bias. Acad Emerg Med. 2002; 9: 1184-1204. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/12414468
4. Solberg EE, Aabakken L, Sandstad O, Bach Gansmo E, Nordby G, Enger E, et al. The medical record; content, interpretation and quality. Study of 100 medical records from a department of internal medicine. Tidsskr Nor Laegeforen. 1995; 115: 488-489. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/7871509
5. Robinson SM, Harrison BDW, Lambert MA. Effect of a preprinted form on the management of acute asthma in an accident and emergency department. J Accid Emerg Med. 1996; 13: 93-97. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/8653258
6. Wyatt JC, Wright P. Design should help use of patient's data. Lancet. 1998; 352: 1375-1378. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/9802289
7. Pronovost P, Needham D, Berenholtz S, Sinopoli D, Chu H, Cosgrove S, et al. An intervention to decrease catheter-related bloodstream infections in the ICU. N Engl J Med. 2006; 355: 2725-2732. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/17192537
8. Weiss CH, Moazed F, McEvoy CA, Singer BD, Szleifer I, Amaral LA, et al. Prompting physicians to address a daily checklist and process of care and clinical outcomes: a single-site study. Am J Respir Crit Care Med. 2011; 184: 680-686. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/21616996