Department of Scientific Publications

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center
Making Cancer History®

Writing an Effective Narrative Review

Sarah Bronson, ELS

What is a narrative review?

- A summary, synthesis, or critique of the literature on a topic
- Distinct from a systematic review

Characteristics of an effective review

- Is based on a clear purpose
- Is well organized
- Brings a fresh perspective
- Benefits the reader

PLANNING THE REVIEW

- Talk to the journal editor.
- Define the purpose, audience, and scope.
- Plan and carry out a literature search.
- Use the literature to plan the review structure, then make an outline.

Communicate with the journal editor

- Before you write, communicate with the editor.
- For *solicited* reviews, the topic should be defined in the invitation.
- For *unsolicited* reviews, ask the editor whether your review would be welcome.

Define purpose, audience, scope

- Purpose: discuss recent developments? resolve a debate? answer a question?
- Audience: experts or non-experts? within or outside your field?
- Scope: which question(s) will be addressed? to what depth?

Examples of reviews with various purposes

The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

Dan L. Longo, M.D., *Editor*

Immune-Related Adverse Events Associated with Immune Checkpoint Blockade

Michael A. Postow, M.D., Robert Sidlow, M.D., and Matthew D. Hellmann, M.D.

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1 St., New York,

IMMUNOTHERAPY ENHANCES A PATIENT'S IMMUNE SYSTEM TO FIGHT DISEASE and has recently been a source of promising new cancer treatments. Among the many immunotherapeutic strategies, immune checkpoint blockade

Author Correction

Reprogramming glucose metabolism in cancer: can it be exploited for cancer therapy?

Nissim Hay

Abstract | In recent years there has been a growing interest among cancer biologists in cancer metabolism. This Review summarizes past and recent advances in our understanding of the reprogramming of glucose metabolism in cancer cells, which is mediated by oncogenic drivers
entiated character of cancer cells. The reprogrammed glucose metabolism
quired to fulfil anabolic demands. This Review discusses the possibility of
ogrammed glucose metabolism for therapeutic approaches that selectively

REVIEWS

A causal mechanism for childhood acute lymphoblastic leukaemia

Mel Greaves

Abstract | In this Review, I present evidence supporting a multifactorial causation of childhood acute lymphoblastic leukaemia (ALL), a major subtype of paediatric cancer. ALL evolves in two discrete steps. First, in utero initiation by fusion gene formation or hyperdiploidy generates a covert, pre-leukaemic clone. Second, in a small fraction of these cases, the postnatal acquisition of secondary genetic changes (primarily V(D)J recombination-activating protein (RAG) and activation-induced cytidine deaminase (AID)-driven copy number alterations in the case of ETS translocation variant 6 (*ETV6*)–runt-related transcription factor 1 (*RUNX1*)$^+$ ALL) drives conversion to overt leukaemia. Epidemiological and modelling studies endorse a dual role for common

Examples of reviews with various audiences

NARRATIVE REVIEW ARTICLE

Electroencephalography and Brain Oxygenation Monitoring in the Perioperative Period

Thomas W. L. Scheeren, MD, PhD,* Merel H. Kuizenga, MD,* Holger Maurer, MD,†
Michel M. R. F. Struys, MD, PhD,* and Matthias Heringlake, MD†

Maintaining brain function and integrity is a pivotal part of anesthesiological practice. The present overview aims to describe the current role of the 2 most frequently used monitoring methods for evaluation brain function in the perioperative period, ie, electroencephalography (EEG) and brain oxygenation monitoring. Available evidence suggests that EEG-derived parameters
iformation about depth of anesthesia for optimizing anesthetic titration. The
ion of drug consumption or recovery time are heterogeneous, but most studies
of recovery times if anesthesia is titrated along processed EEG. It has been
t future EEG-derived indices will allow a better understanding of the neurophysi-
s of anesthetic-induced alteration of consciousness instead of the probabilistic
ften used nowadays.
n can be either measured directly in brain parenchyma via a surgical burr hole,
he venous outflow of the brain via a catheter in the jugular bulb, or assessed
near-infrared spectroscopy. The latter method has increasingly been accepted
s ease of use and increasing evidence that near-infrared spectroscopy–derived
aturation levels are associated with neurological and/or general perioperative
d increased mortality. Furthermore, a goal-directed strategy aiming to avoid
ations might help to reduce these complications. Recent evidence points out
gy may additionally be used to assess autoregulation of cerebral blood flow
to titrate arterial blood pressure to the individual needs and for bedside diag-
d autoregulation. (Anesth Analg 2019;128:265–77)

JAMA | Review

Diagnosis and Management of Rheumatoid Arthritis
A Review

Daniel Aletaha, MD; Josef S. Smolen, MD

Supplemental content

IMPORTANCE Rheumatoid arthritis (RA) occurs in about 5 per 1000 people and can lead to severe joint damage and disability. Significant progress has been made over the past 2 decades regarding understanding of disease pathophysiology, optimal outcome measures, and effective treatment strategies, including the recognition of the importance of diagnosing and treating RA early.

CA CANCER J CLIN 2018;68:182–196

Optimal Pain Management for Patients With Cancer in the Modern Era

Bethann M. Scarborough, MD[1]; Cardinale B. Smith, MD, PhD[2,3]

[1]Assistant Professor, Brookdale Department of Geriatrics and Palliative Care, Icahn School of Medicine at Mount Sinai, New York, NY; [2]Associate Professor of Medicine, Division of Hematology and Medical Oncology, Brookdale Department of Geriatrics and Palliative Care, Icahn School of Medicine at Mount Sinai, New York, NY; [3]Director of Quality for Cancer Services, Mount Sinai Health System, Tisch Cancer Institute, Icahn School of

Abstract: Pain is a common symptom among patients with cancer. Adequate pain assessment and management are critical to improve the quality of life and health outcomes in this population. In this review, the authors provide a framework for safely and effectively managing cancer-related pain by summarizing the evidence for the importance of controlling pain, the barriers to adequate pain management, strategies to assess and manage cancer-related pain, how to manage pain in patients at risk of substance use disorder, and considerations when managing pain in a survivorship population. **CA Cancer J Clin 2018;68:182-196. © 2018 American Cancer Society.**

Plan the literature search

- Decide what kinds of articles you will look for before you start searching.
  - Study designs or level of evidence
  - Primary outcomes
  - Databases
  - Time period
- Get help from a librarian at the Research Medical Library.

Use the studies to plan the review structure

- Take notes on the selected studies.
- Organize the studies according to:
  - A planned structure
  - Themes
  - A planned structure amended as more themes emerge
- Tools for organizing studies:
  - A table
  - Labels or annotations in a reference manager

Make an outline

- Outline the main points.
- Use headings and subheadings.
  - Chronologic
  - General to particular
  - Common to rare
  - Most to least important
- Ensure that subheadings under a heading relate to that heading.

Example of organized headings

- Introduction
- Disease Classification
- Genomic Landscape
- Prognostic Classification Factors
- Current Therapy
  - Induction Therapy
  - Consolidation Therapy
    - Consolidation with Intensive Chemotherapy
    - Allogeneic Hematopoietic-Cell Transplantation
    - Transplantation Techniques
    - Donor Graft and Cell Source Options
    - Complications of Allotransplantation
    - Relapse after Transplantation
    - New Approaches to Improving Outcomes of Transplantation
  - Treatment for Patients Who Are Ineligible for Intensive Therapy
  - Treatment of Relapsed and Primary Refractory AML
- New Therapies
- Conclusion

WRITING THE REVIEW

- Introduction
- Main text
- Conclusion
- Abstract

Writing the introduction

- Establish the rationale for the review.
- State the purpose, which should:
  - Flow logically from the rationale.
  - Guide the rest of the review.
- Keep it short.

Example of a purpose statement

"Sequence analysis of cell-free DNA (cfDNA) fragments that circulate in the blood of pregnant women, along with the translation of this method into screening for fetal chromosome abnormalities, is a success story of modern genomic medicine. In less than a decade, prenatal cfDNA testing has gone from small, proof-of-principle studies to a global transformation of prenatal care. As of late 2017, a total of 4 million to 6 million pregnant women had had DNA from their plasma analyzed to screen for fetal aneuploidy. The exponential growth of the test has been a function of the role of the biotechnology industry in its development and marketing. **Here we review what has been learned from the wide-scale implementation of this testing, how it has changed prenatal clinical care, and what ethical concerns have arisen, and we speculate about what lies ahead.**" –Bianchi et al., *N Engl J Med,* 2018; 379: 464-473

Example of a purpose statement

"**In this Review, I focus on the body of evidence — epidemiological, biological and genetic — that has accumulated, particularly over the past decade, and supports a causal mechanism that is selective for the common, or B cell precursor, subtype of childhood ALL (designated here as BCP-ALL).** This is suggested to be a multifactorial mix of infectious exposure, inherited or constitutive genetics and chance, with patterns or timing of common infection in early life identified as the critical component and a potential route for preventive intervention." –Greaves, *Nat Rev Cancer,* 2018; 18: 471-484

Writing the main text: synthesize

"The foundation of researched writing is always the writer's own ideas, which flow from point to point, supported and guided by research." –*Hodges' Harbrace Handbook*

Writing the main text: synthesize

- *Summarize* individual studies by restating the main points in your own words.
- *Paraphrase* a statement from a study by restating the same information in your own words.

Example of a summary

"In the United Kingdom National Cancer Research Institute (NCRI) AML17 trial, 1206 adults, most of whom were younger than 60 years of age, were randomly assigned to first induction therapy with daunorubicin at a dose of either 60 mg per square meter of body-surface area or 90 mg per square meter; no significant difference was shown with respect to the rate of complete response or the rate of overall survival." –Döhner et al., *N Engl J Med* 2015; 373: 1136-1152

Example of a summary

Original: "Formation of the premetastatic niche has been shown to enhance the establishment and growth of metastatic foci (Kaplan et al., 2005), and we have identified **LOX** as a tumor-secreted protein that is critically involved in premetastatic niche formation (Figure 4D). Our data show that LOX secreted by **hypoxic** primary tumor cells accumulates with fibronectin at sites of future metastasis, **crosslinks collagen** IV in the basement membrane, and **increases adhesion** of CD11b+ cells. Adherent CD11b+ cells produce MMP-2, which degrades collagen IV, increasing CD11b+ cell invasion into the lung tissue and releasing chemoattractive collagen IV peptides. The collagen IV peptides enhance further recruitment of CD11b+ cells, generating a positive feed-forward loop for increased accumulation of BMDCs, increased extracellular matrix remodeling, and creation of the premetastatic niche. Importantly, formation of the premetastatic niche is critically dependent on the accumulation of enzymatically active LOX. Taken together, our data demonstrate a **crucial role for LOX secreted by hypoxic tumor cells in formation of the premetastatic niche** and in the enhancement of metastatic tumor growth." –Erler et al., *Nat Rev Cancer* 2009; 19: 9-31

Summary: "Following extravasation, several mechanisms within the pre-metastatic niche facilitate DTC colonization. **Hypoxia** in the primary breast tumour induced by elevated levels of HIF1α triggers expression of **lysyl oxidases**, which systemically **crosslinks collagen** in the lungs, **increasing the adhesion** of myeloid cells to **generate niches that support colonization**." –Altorki et al., *Cancer Cell* 2018; 15: 35-44

Example of a paraphrase

Original: ". . . non-transformed **MCF10A mammary epithelial cells** were used as an *in vitro* culture system, and were subjected to a starvation protocol, thereafter simply referred to as 'starvation', that **deprived them simultaneously of serum and growth factors** (EGF, insulin) for 24 h (Supplementary Table 1). This starvation protocol resulted in **decreased uptake of nutrients, including glucose and glutamine** from the media . . ." –Muranen et al., *Nat Commun* 2017; 8: 13989

Paraphrase: "Indeed, **uptake of glucose and glutamine was reduced** in **MCF10A cells** when **serum and growth factors were withdrawn**." –Finicle et al., *Nat Rev Cancer* 2018; 18: 619-633

Writing the main text: synthesize

- Use transitions to signal similarities, contrasts, or other relationships between studies. (Examples: *however*, *in contrast*, *likewise, similarly*, *furthermore, moreover*)
- Interpret each group of findings as a whole.
- Identify areas where more research is needed.

Example of interpretation and synthesis

"In 1988, two hypotheses were presented that suggested a new perspective on this problem. **The two models are sometimes considered as alternative or competing explanations. I believe they portray the same picture through different lenses.** Both propose that childhood leukaemia may arise as a consequence of an abnormal immune response to common infection(s). One model advanced by epidemiologist Leo Kinlen was based on transient and localized increases in the incidence of childhood leukaemia that could be ascribed, epidemiologically, to population mixing.

"The other model that I proposed was dubbed the 'delayed infection' hypothesis, the focus of this article, and was more biological than epidemiological in its origins and was applied specifically to BCP-ALL."

–Greaves et al., *Nat Rev Cancer* 2018; 18: 471-484

Writing the conclusion

- End with a conclusion that corresponds to the purpose of the review and is based on the presented material.
- The conclusion may be followed by a few sentences that emphasize areas where more research is needed.

Writing the abstract

- The abstract of a review is typically unstructured but should contain these elements:
  - Background and rationale
  - Purpose

- Can also include:
  - Key points made
  - Conclusion

Example of an abstract

"Although we have come a long way in our understanding of the signals that drive cancer growth, and how these signals can be targeted, **effective control of this disease remains a key scientific and medical challenge. The therapy resistance and relapse that are commonly seen are driven in large part by the inherent heterogeneity within cancers** that allows drugs to effectively eliminate some, but not all, malignant cells. **Here, we focus on the fundamental drivers of this heterogeneity by examining emerging evidence that shows that these traits are often controlled by the disruption of normal cell fate and aberrant adoption of stem cell signals.** We discuss how undifferentiated cells are preferentially primed for transformation and often serve as the cell of origin for cancers. We also consider evidence showing that activation of stem cell programmes in cancers can lead to progression, therapy resistance and metastatic growth and that targeting these attributes may enable better control over a difficult disease." –Lytle et al., *Nat Rev Cancer* 2018; 18: 669-680

Resources for writing a review

- Pautasso M. Ten simple rules for writing a literature review. *PLoS Computational Biology*. 2013;9:e1003149.
- Daldrup-Link HE. Writing a review article – Are you making these mistakes? *Nanotheranostics*. 2018;2:197-200.
- Indiana University–Purdue University Indianapolis. "Literature review: synthesizing multiple sources." https://liberalarts.iupui.edu/uwc/files/documents/Lit_Review_Synthesis.pdf
- Scientific Publications. "Avoiding Plagiarism" [webinar]. http://inside.mdanderson.org/departments/scipub/avoiding-plagiarism-and-self-plagiarism.pdf
- Research Medical Library Research Services. http://www3.mdanderson.org/library/research-services/team.html

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