

Crafting your scientific narrative

Leveraging AI for writing

Sampoorna Rappaz, PhD

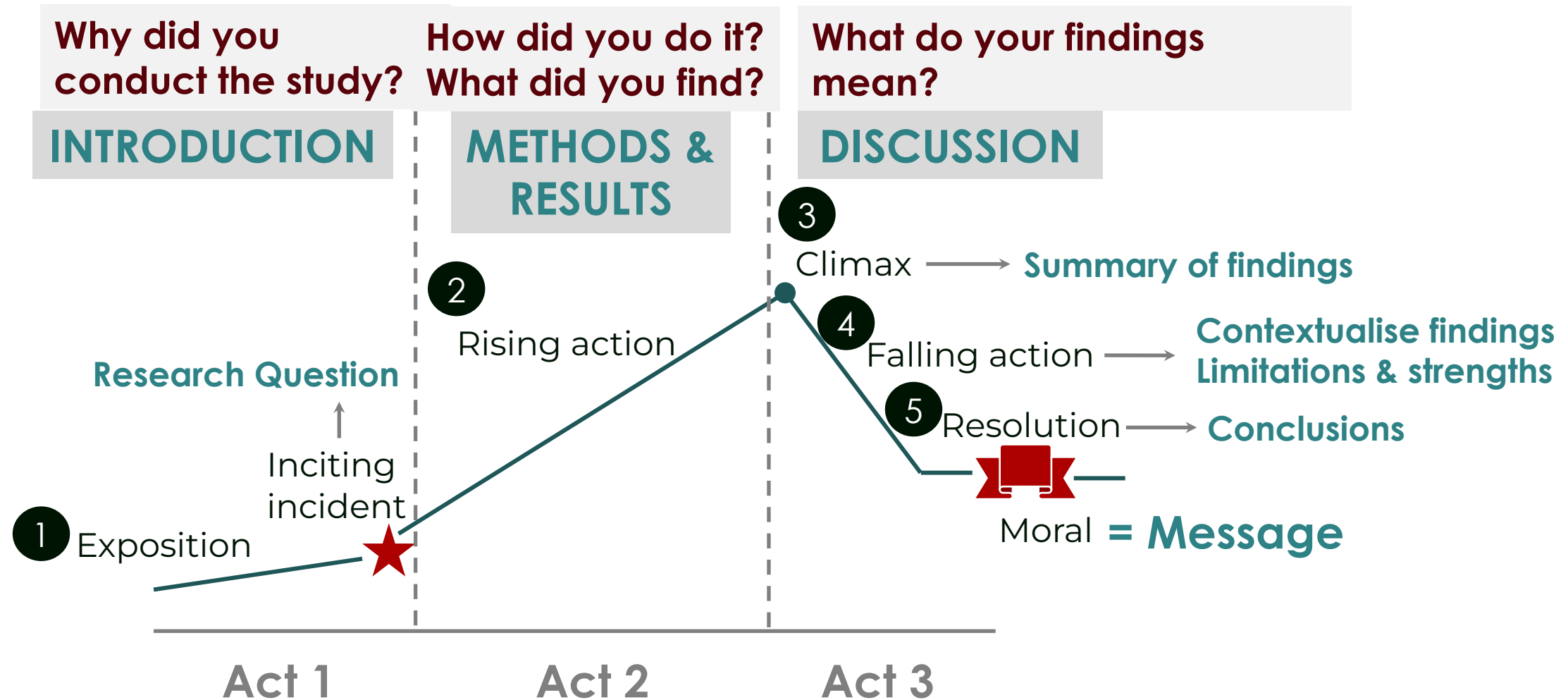
Academic Writing Tutor
Medical and Natural Sciences Library
University of Bern

Future Leaders of Hematology & Oncology 2025

05 April 2025, Bern



A scientific paper is a teaching story told in three acts



But it is not a purely objective story

Report exactly what you did
and what you found:

Objective sections

Results

Table, figures

Methods

Conclusion

Discussion

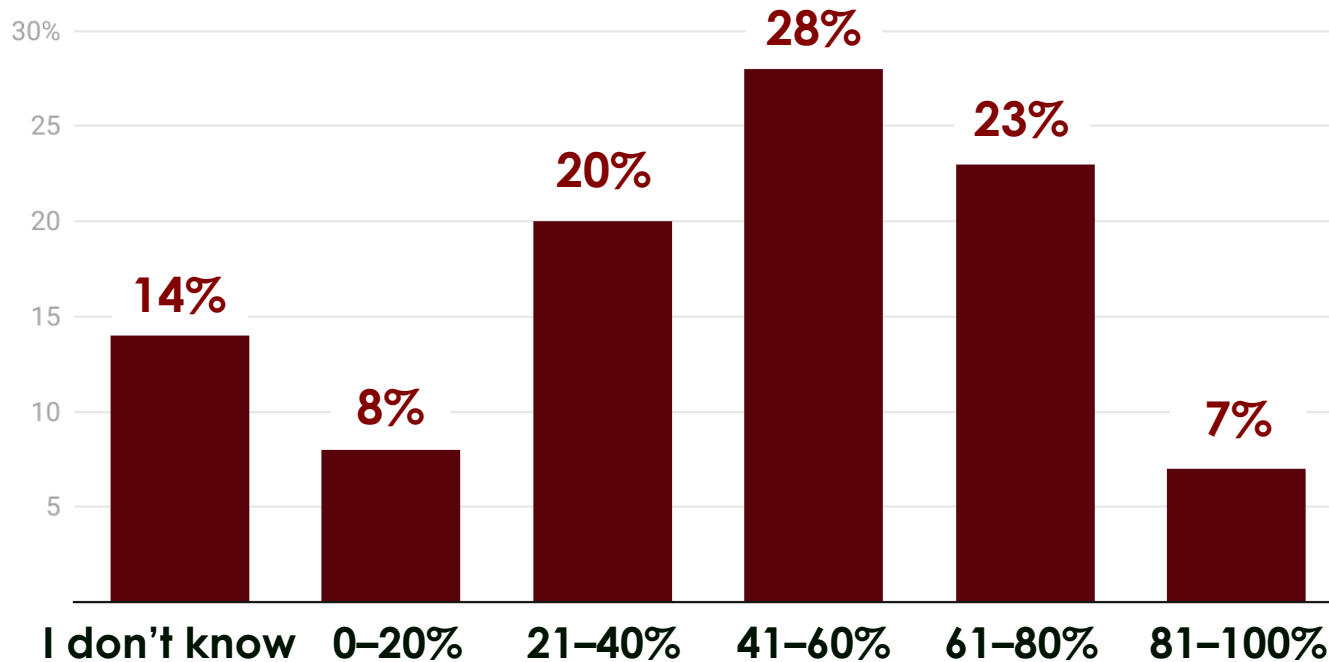
Present your arguments for
why you conducted the study
and what your findings mean:

Subjective sections

Introduction

Reproducibility crisis in biomedicine

What proportion of papers in clinical biomedical research are reproducible?



Why?
Pressure to publish

Reporting Methods and Results

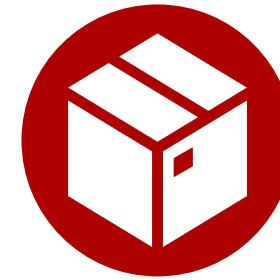


RECORD

information in your
lab notebook



DOCUMENT your
process, findings,
and thoughts
(issues, limitations)



Think of Methods &
Results as a series of
CONTAINERS you
need to fill

Reporting guidelines

Different guidelines for different kinds of studies

- Randomized trials (**CONSORT**)
- Observational studies (**STROBE**)
- Systematic reviews (**PRISMA**)
- Study protocols (**SPIRIT**)
- Case reports (**CARE**)
- Diagnostic/Prognostic studies (**STARD**)
- Qualitative research (**SRQR**)
- Preclinical animal studies (**ARRIVE**)

They do not teach you methodologies, but they tell **WHAT TO REPORT WHERE** in the manuscript.

Find more guidelines at <https://www.equator-network.org/>

General guidelines for equitable and transparent research

- Sex and Gender Equity in Research (**SAGER**)
- Guidelines for Accurate and Transparent Health Estimates Reporting (**GATHER**)

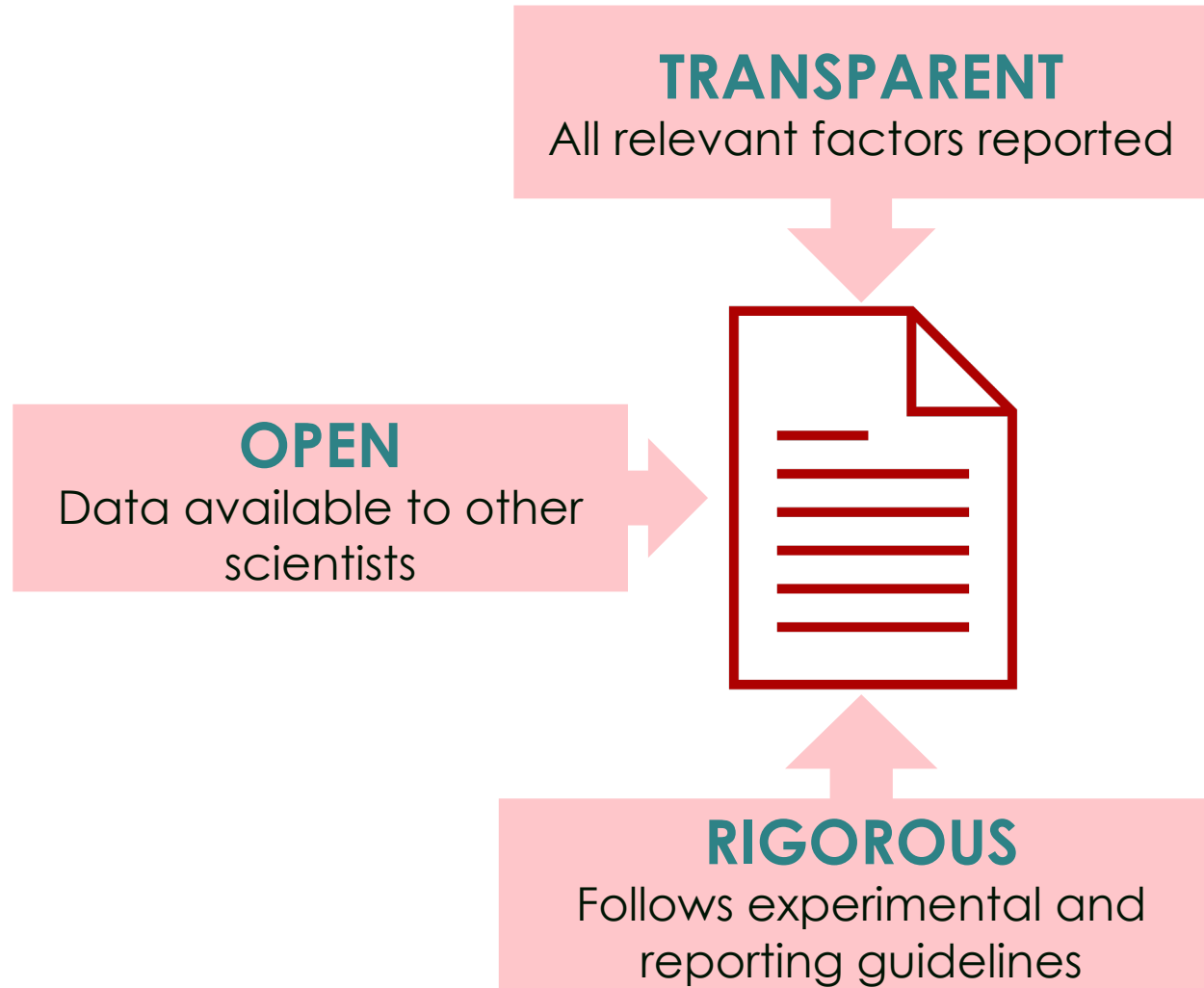
STROBE guidelines

Containers for observational studies

STROBE Case-Control v4 Checklist			
Item number	METHODS	Item number	RESULTS
4	Study design		
9	Bias		
10	Study size		
5	Setting, locations, and relevant dates, including periods of recruitment, exposure,		
6a	Participants: Eligibility criteria; methods of case ascertainment and control selection with rationale	13a	Participants: Number of potentially eligible, eligible, included, analysed
6b	Participants in matched studies: Matching criteria	13b	Participants: Reasons for non-participation
		13c	Flow diagram
		14a	Participants' characteristics: Demographic, clinical, social
7	Variables: Outcomes, exposures, predictors, potential confounders, effect modifiers	14a	Participants' characteristics: Exposures, confounders
11	Quantitative variables	14b	Participants missing for each variable of interest
8	Data sources and measurement	15	Outcomes: Number in each exposure category or summary measure of exposure
12	Statistical methods	16a	Main results: Unadjusted and adjusted estimates with 95% confidence intervals
		16b	Category boundaries for continuous variables
		16c	Absolute risk
		17	Other analyses: Subgroup analysis, sensitivity analysis

Tip: Maintain a separate file where you collate and organize the information from your lab notes, data management software, and data visualizations

Reporting Methods and Results



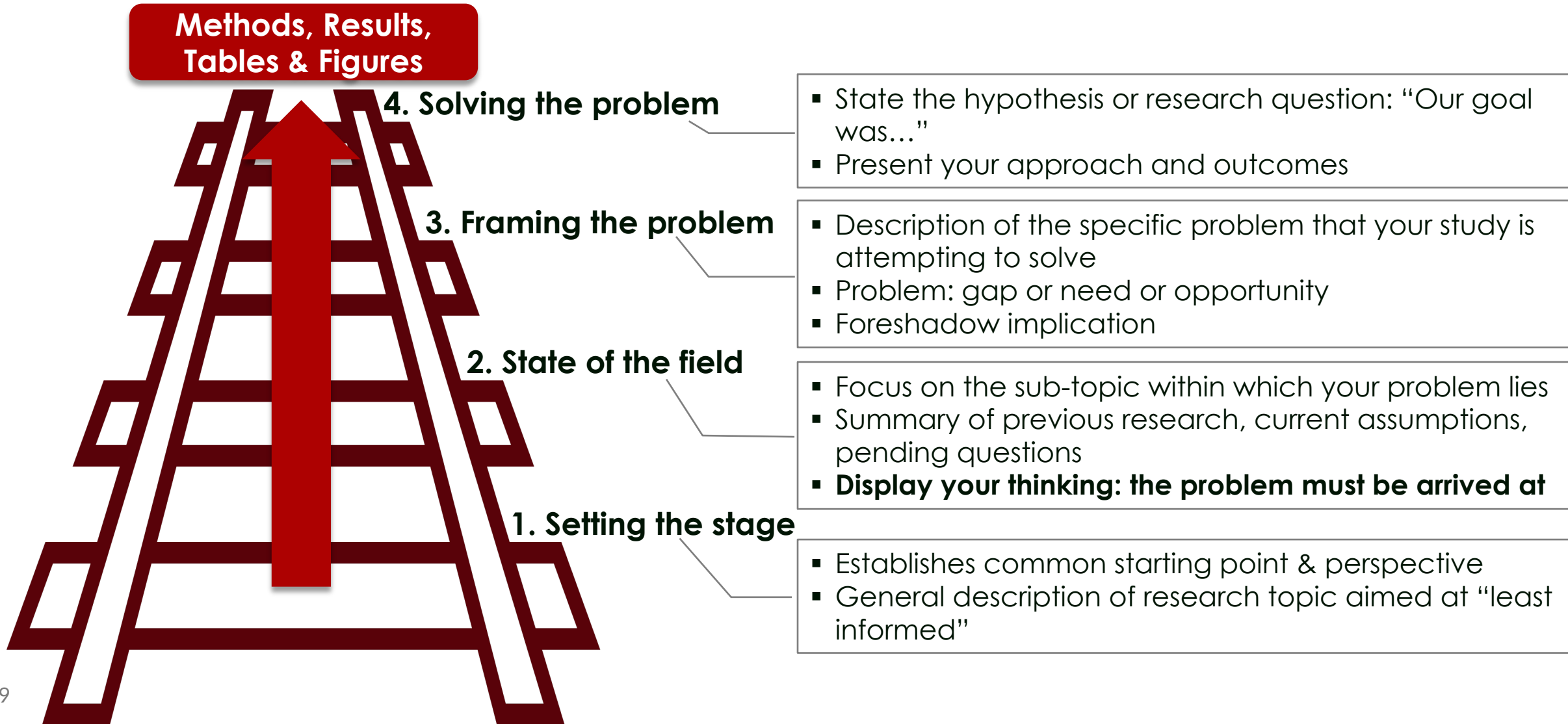
What can other scientists do with your work?

Check

- Limitations
- Robustness
- Generalizability
- Bias
- Next steps

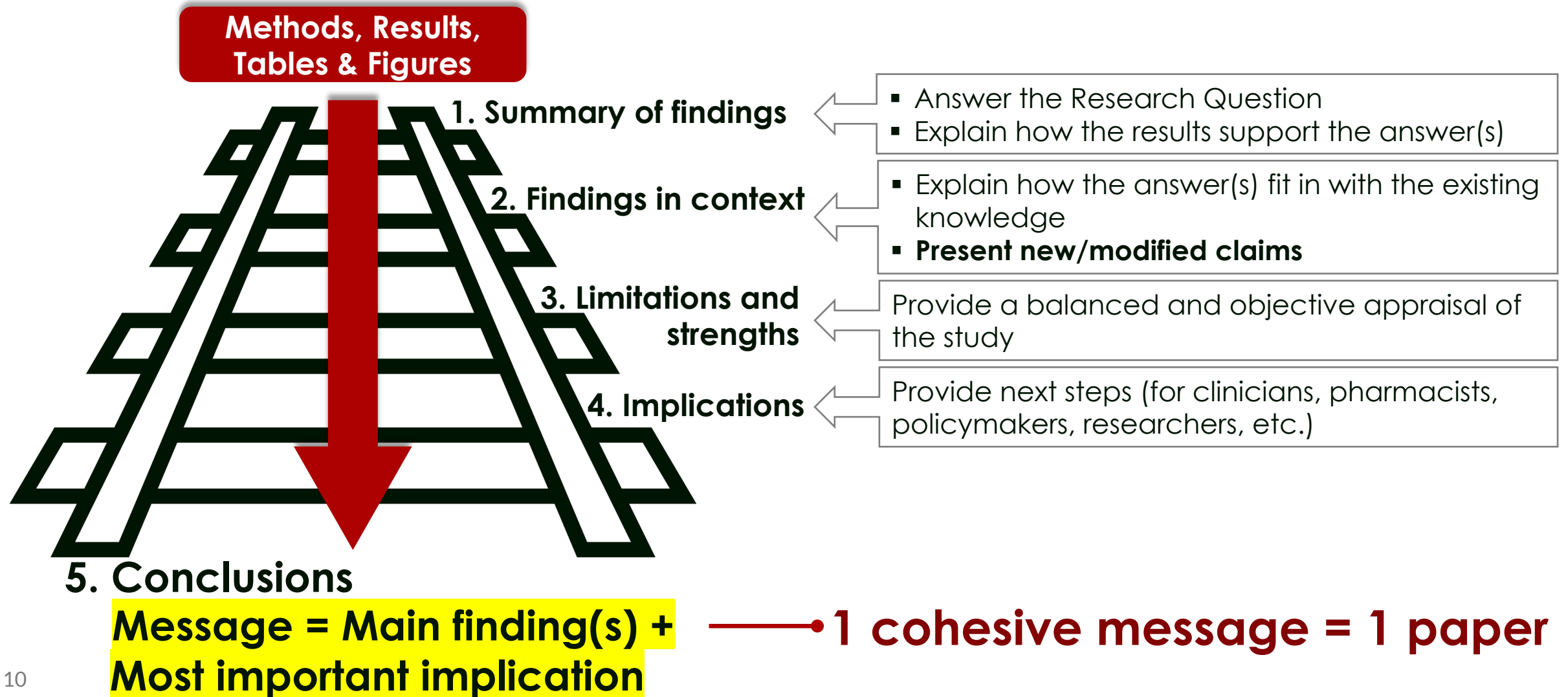
Writing the narrative sections

Structure of the Introduction section



Writing the narrative sections

Structure of the Discussion section



Outlining: A technique for efficient & ethical writing

1. Introduction

- 7 A. General background
- 5 B. State of the field
- 1 C. Problem
- 1 D. Solution

2. Methods

- 2 A. Study design
 - i. Checklist #
- B. Participants
- C. ...

3. Results

- 3 A. Participants
- B. Primary outcome
- C. ...

4. Discussion

- 4 A. Summary of findings
- B. Findings in context
- 2 C. Limitation/Strengths
- 6 D. Implications
- E. Message

The screenshot shows the Microsoft Word interface with the 'View' tab selected in the ribbon. The 'Outline' button is highlighted in the 'View' tab. The Outline pane on the left shows a hierarchical structure of the document. The 'Outlining' task pane is also visible, showing options for 'Show Level', 'Show Text Formatting', and 'Show First Line Only'.

Outline Structure:

- Heading 1: Introduction
 - Heading 2: Background
 - Heading 3: Research area
 - Normal: Disease X has high mortality
 - Heading 2: Specific topic
 - Heading 2: Problem/gap
 - Heading 3: Research question
 - Heading 3: Solution
 - Heading 1: Methods
 - Heading 2: Study design
 - Heading 3: Enrolment
 - Heading 3: Ethics approval
 - Heading 2: Patients
- Heading 2: Patients
 - Heading 3: Inclusion and exclusion criteria
 - Heading 2: Randomisation and masking
 - Heading 2: Procedures
 - Heading 2: Outcomes
 - Heading 3: Primary
 - Heading 3: Secondary
 - Heading 2: Statistical analysis
- Heading 1: Results
 - Heading 2: Participants
 - Heading 2: Primary outcome
 - Heading 2: Secondary outcomes
 - Heading 3: Outcome 1
 - Heading 3: Outcome 2
 - Heading 2: Post-hoc analyses

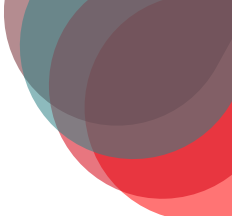
Writing the Abstract

- Quick read (should be easy to understand)
- Maybe the only thing that's read
- Decision aid for journal editors & conference committees
- Indexing and searching

**Overview +
essential details**

Aligns with paper

Standalone



A scoping review of comparisons between abstracts and full reports in primary biomedical research

Li G, et al. BMC Med Res Methodol. 2017. doi: [10.1186/s12874-017-0459-5](https://doi.org/10.1186/s12874-017-0459-5)

“All the included studies [n=17] concluded that abstracts were frequently inconsistently reported, and that efforts were needed to improve abstract reporting in primary biomedical research.”

Types of abstract

Informative abstract

- Most common in original research papers and conference abstracts
- Contain numerical data
- No tables or figures (unless it's a conference abstract)
- Can be structured or unstructured

Descriptive abstract

- Preferred by generalist journals and some specialist journals
- Does not contain numerical data
- Sometimes referred to as a “summary abstract”
- Usually unstructured

Informative structured abstract

- Distinct **subsections**
- Often broken into **standard IMRaD sections**
- Sometimes includes more subsections and other additions, e.g., keywords
- Abstracts of Open Access articles on PubMed may include data visualization elements and Conflict of Interest statement
- Subheadings & structure **vary from journal to journal**

Example

Clinical Trial > JAMA. 2024 Jun 4;331(21):1814-1823. doi: 10.1001/jama.2024.4783.

Ponatinib vs Imatinib in Frontline Philadelphia Chromosome-Positive Acute Lymphoblastic Leukemia: A Randomized Clinical Trial

Elias Jabbour¹, Hagop M Kantarjian¹, Ibrahim Aldoss², Pau Montesinos³, Jessica T Leonard⁴, David Gómez-Almaguer⁵, Maria R Baer⁶, Carlo Gambacorti-Passerini⁷, James McCloskey⁸, Yosuke Minami⁹, Cristina Papayannidis¹⁰, Vanderson Rocha¹¹, Philippe Rousselot¹², Pankit Vachhani¹³, Eunice S Wang¹⁴, Bingxia Wang¹⁵, Meliessa Hennessy¹⁵, Alexander Vorog¹⁵, Niti Patel¹⁵, Tammie Yeh¹⁵, Jose-Maria Ribera¹⁶

Affiliations + expand

PMID: 38722621 PMCID: PMC11082750 DOI: 10.1001/jama.2024.4783

Abstract

Importance: In newly diagnosed Philadelphia chromosome-positive (Ph+) acute lymphoblastic leukemia (ALL), disease progression due to acquired resistance to first- or second-generation BCR::ABL1 tyrosine kinase inhibitors is common. Ponatinib inhibits BCR::ABL1 and all single-mutation variants, including T315I.

Objective: To compare frontline ponatinib vs imatinib in adults with newly diagnosed Ph+ ALL.

Design, setting, and participants: Global registrational, phase 3, open-label trial in adults aged 18 years or older with newly diagnosed Ph+ ALL. From January 2019 to May 2022, eligible patients at 77 sites were randomized 2:1 to ponatinib (30 mg/d) or imatinib (600 mg/d) with reduced-intensity chemotherapy, followed by single-agent ponatinib or imatinib after the cycle 20 phase of the trial. The last date of follow-up for this analysis was August 12, 2022.

Intervention: Patients received ponatinib, 30 mg/d, or imatinib, 600 mg/d, with reduced-intensity chemotherapy, followed by single-agent ponatinib or imatinib after cycle 20. The ponatinib dose was reduced to 15 mg on achievement of minimal residual disease-(MRD) negative complete remission.

Main outcomes and measures: The primary end point of this interim analysis was MRD-negative complete remission ($\leq 0.01\%$ BCR::ABL1 [MR4] centrally assessed by reverse transcriptase-quantitative polymerase chain reaction), with complete remission maintained for at least 4 weeks at the end of cycle 3. The key secondary end point was event-free survival.

Results: Of 245 patients randomized (median age, 54 years; 133 [54.3%] female), 232 (ponatinib, n = 154; imatinib, n = 78) who had p190 or p210 dominant isoforms verified by the central laboratory were analyzed for the primary end point. The MRD-negative complete remission rate (primary end point) was significantly higher with ponatinib (34.4% [53/154]) vs imatinib (16.7% [13/78]) (risk difference, 0.18 [95% CI, 0.06-0.29]; P = .002). At the data cutoff, event-free survival had not met the prespecified number of events. Median event-free survival was not reached in the ponatinib group and was 29 months in the imatinib group. The most common adverse events were similar between treatment groups. Arterial occlusive events were infrequent and comparable between groups (ponatinib, 2.5%; imatinib, 1.2%).

Conclusions and relevance: Ponatinib demonstrated a superior rate of MRD-negative complete remission at the end of induction vs imatinib when combined with reduced-intensity chemotherapy in adults with newly diagnosed Ph+ ALL. The safety profile of ponatinib was comparable with imatinib.

Trial registration: ClinicalTrials.gov Identifier: [NCT03589326](https://clinicaltrials.gov/ct2/show/study/NCT03589326).

CONSORT abstract checklist

Reporting RCTs

Item	Description
Title	Identification of the study as randomised
Authors*	Contact details for the corresponding author
Trial design	Description of the trial design (eg, parallel, cluster, non-inferiority)
Methods	
Participants	Eligibility criteria for participants and the settings where the data were collected
Interventions	Interventions intended for each group
Objective	Specific objective or hypothesis
Outcome	Clearly defined primary outcome for this report
Randomisation	How participants were allocated to interventions
Blinding (masking)	Whether or not participants, care givers, and those assessing the outcomes were blinded to group assignment

Results	
Numbers randomised	Number of participants randomised to each group
Recruitment	Trial status
Numbers analysed	Number of participants analysed in each group
Outcome	For the primary outcome, a result for each group and the estimated effect size and its precision
Harms	Important adverse events or side-effects
Conclusions	General interpretation of the results
Trial registration	Registration number and name of trial register
Funding	Source of funding
*For conference abstracts.	
Table: Items to include when reporting randomised trials in journal or conference abstracts⁷	

PRISMA abstract checklist

Reporting Systematic Reviews & Meta-analyses



PRISMA 2020 for Abstracts Checklist

Section and Topic	Item #	Checklist item	Reported (Yes/No)
TITLE			
Title	1	Identify the report as a systematic review.	
BACKGROUND			
Objectives	2	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	
METHODS			
Eligibility criteria	3	Specify the inclusion and exclusion criteria for the review.	
Information sources	4	Specify the information sources (e.g. databases, registers) used to identify studies and the date when each was last searched.	
Risk of bias	5	Specify the methods used to assess risk of bias in the included studies.	
Synthesis of results	6	Specify the methods used to present and synthesise results.	
RESULTS			
Included studies	7	Give the total number of included studies and participants and summarise relevant characteristics of studies.	
Synthesis of results	8	Present results for main outcomes, preferably indicating the number of included studies and participants for each. If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).	
DISCUSSION			
Limitations of evidence	9	Provide a brief summary of the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).	
Interpretation	10	Provide a general interpretation of the results and important implications.	
OTHER			
Funding	11	Specify the primary source of funding for the review.	
Registration	12	Provide the register name and registration number.	

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses
Page MJ, et al. BMJ. 2021. doi: [10.1136/bmj.n71](https://doi.org/10.1136/bmj.n71)
Also see prisma-statement.org

Structured abstract

According to ICMJE guidelines

Main content

- **Background:** Provide the context; state the study's purpose
- **Methods:** State the basic procedures (selection of study participants, settings, measurements, analytical methods)
- **Results:** State main findings (giving effect sizes and their statistical and clinical significance)
- **Conclusions:** State the principal conclusions **without over-interpretation**

Also...

- Emphasize **new and important aspects of the study or observations** *[common]*
- Note **important limitations** *[rare]*
- Include **study registration number** *[common]*, **data repository number** *[rare]*
- May include references *[rare; check your target journal]*

ICMJE: International Committee of Medical Journal Editors
Read ICMJE recommendation of abstracts here:
[icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html#b](https://www.icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html#b)

Informative unstructured abstract

- Single paragraph
- Less common for clinical studies
- May still need to submit a completed checklist

Clinical Trial > Blood. 2024 Oct 31;144(18):1924-1935. doi: 10.1182/blood.2024024631.

Venetoclax-obinutuzumab for previously untreated chronic lymphocytic leukemia: 6-year results of the randomized phase 3 CLL14 study

Othman Al-Sawaf¹, Sandra Robrecht¹, Can Zhang¹, Stefano Olivieri², Yi Meng Chang³, Anna Maria Fink¹, Eugen Tausch⁴, Christof Schneider⁴, Matthias Ritgen⁵, Karl-Anton Kreuzer¹, Liliya Sivchev⁶, Carsten Utoft Niemann⁷, Anthony Schwarzer⁸, Javier Loscertales⁹, Robert Weinkove^{10,11}, Dirk Strumberg¹², Allannah Kilfoyle¹³, Beenish S Manzoor¹⁴, Dureshahwar Jawaid¹⁴, Nnadozie Emechebe¹⁴, Jacob Devine¹⁵, Michelle Boyer¹⁶, Eva D Runkel¹⁴, Barbara Eichhorst¹, Stephan Stilgenbauer⁴, Yanwen Jiang¹⁵, Michael Hallek¹, Kirsten Fischer¹

Affiliations + expand

PMID: 39082668 PMCID: PMC11551846 DOI: 10.1182/blood.2024024631

Abstract

In the CLL14 study, patients with previously untreated chronic lymphocytic leukemia (CLL) and coexisting conditions were randomized to 12 cycles of venetoclax-obinutuzumab (Ven-Obi, n = 216) or chlorambucil-obinutuzumab (Clb-Obi, n = 216). Progression-free survival (PFS) was the primary end point. Key secondary end points included time-to-next-treatment (TTNT), rates of undetectable minimal residual disease (uMRD), overall survival (OS), and rates of adverse events. Patient reported outcomes of time until definitive deterioration (TUDD) in quality of life (QoL) were analyzed. At a median observation time of 76.4 months, PFS remained superior for Ven-Obi compared with Clb-Obi (median, 76.2 vs 36.4 months; hazard ratio [HR], 0.40; 95% confidence interval [CI], 0.31-0.52; P < .0001). Likewise, TTNT was longer after Ven-Obi (6-year TTNT, 65.2% vs 37.1%; HR, 0.44; 95% CI, 0.33-0.58; P < .0001). In the Ven-Obi arm, presence of del(17p), unmutated immunoglobulin heavy-chain variable region, and lymph node size of ≥5 cm were independent prognostic factors for shorter PFS. The 6-year OS rate was 78.7% in the Ven-Obi and 69.2% in the Clb-Obi arm (HR, 0.69; 95% CI, 0.48-1.01; P = .052). A significantly longer TUDD in global health status/QoL was observed in the Ven-Obi than in the Clb-Obi arm (median, 82.1 vs 65.1 months; HR, 0.70; 95% CI, 0.51-0.97). Follow-up-adjusted second primary malignancies incidence rates were 2.3 and 1.4 per 1000 patient-months in the Ven-Obi and Clb-Obi arm, respectively. The sustained long-term survival and QoL benefits support the use of 1-year fixed-duration Ven-Obi in CLL. This trial was registered at www.ClinicalTrials.gov as [#NCT02242942](https://clinicaltrials.gov/ct2/show/study/NCT02242942).

Descriptive abstract

- One paragraph without much numerical detail, usually unstructured
- Usually short (150-300 words)

Review > Crit Rev Oncol Hematol. 2024 Apr;196:104290.
doi: 10.1016/j.critrevonc.2024.104290. Epub 2024 Feb 8.

Long noncoding RNA expression in acute lymphoblastic leukemia: A systematic review

Sara Cristina Lobo-Alves ¹, Liana Alves de Oliveira ², Gabriela Canalli Kretzschmar ³, Andressa Eloisa Valengo ⁴, Roberto Rosati ⁵

Affiliations + expand
PMID: 38341118 DOI: 10.1016/j.critrevonc.2024.104290

Abstract

Long noncoding RNAs (lncRNAs), as gene expression modulators, are potential players in Acute Lymphoblastic Leukemia (ALL) pathogenesis. We systematically explored current literature on lncRNA expression in ALL to identify lncRNAs consistently reported as differentially expressed (DE) either in ALL versus controls or between ALL subtypes. By comparing articles that provided global expression data for DE lncRNAs in the ETV6::RUNX1-positive ALL subtype, we identified four DE lncRNAs in three independent studies (two versus other subtypes and one versus controls), showing concordant expression of LINC01013, CRNDE and lnc-KLF7-1. Additionally, LINC01503 was consistently downregulated on ALL versus controls. Within RT-qPCR studies, twelve lncRNA were DE in more than one source. Thus, several lncRNAs were supported as DE in ALL by multiple sources, highlighting their potential role as candidate biomarkers or therapeutic targets. Finally, as lncRNA annotation is rapidly expanding, standardization of reporting and nomenclature is urgently needed to improve data verifiability and compilation.

Descriptive structured abstract

> [Front Psychiatry](#). 2022 May 26:13:887588. doi: 10.3389/fpsyt.2022.887588. eCollection 2022.

Influence of Identity Development on Weight Gain in Adolescent Anorexia Nervosa

Lynn I Budde ¹, Simon Wilms ¹, Manuel Föcker ¹, Anke Dalhoff ¹, Joerg M Müller ¹, Ida Wessing ¹

Affiliations + expand

PMID: 35693950 PMCID: [PMC9186337](#) DOI: [10.3389/fpsyt.2022.887588](#)

Abstract

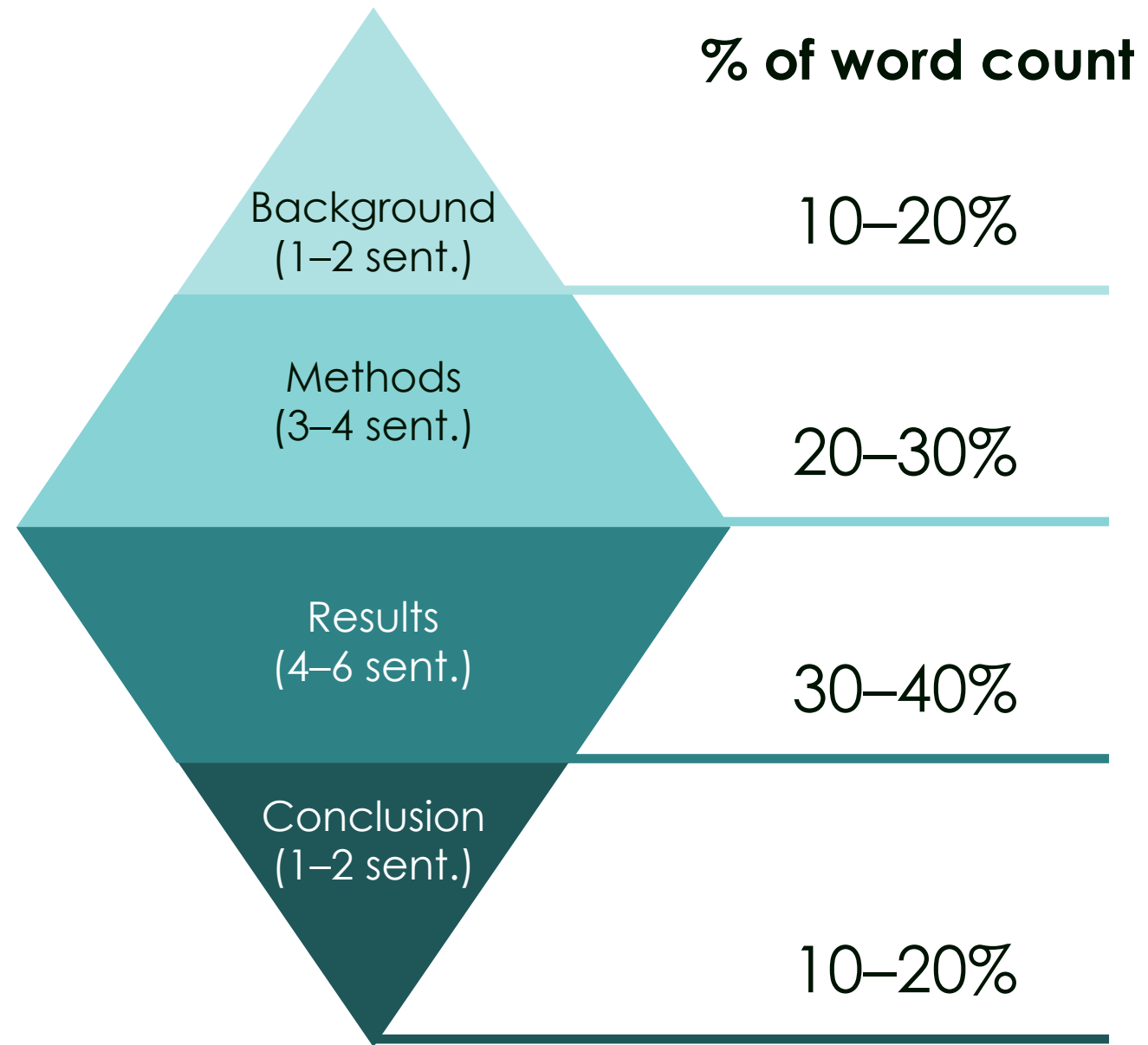
Background: Anorexia Nervosa (AN) typically begins during early adolescence, an important phase of personality development. A substantial proportion of adolescent AN patients shows impaired personality functioning, which might be a relevant but understudied aspect of illness severity. The developmental status of identity as key element of personality is suggested to influence inpatient treatment outcome in adolescents with AN.

Methods: This study analyzed existing data of $N = 60$ adolescents with AN. Multilevel models assessed the influence of identity functioning, measured by the *Assessment of Identity Development in Adolescence* (AIDA) at admission, on weight gain [BMI (body mass index), BMI-SDS (BMI standard deviation score)] during 10 weeks of inpatient treatment. Moreover, the influence of other indicators of illness severity, i.e., eating disorders and comorbid psychopathologies, was explored.

Results: As expected, higher AIDA scores negatively influenced the course of weight gain. A similar effect was observed for other psychopathology measures, especially body image distortion. In general, higher weight at admission was associated with less weight gain. Higher weight at admission was also predicted by higher other psychopathology measures, but not AIDA scores.

Conclusion: The course of weight gain during inpatient treatment was hampered in adolescent AN patients who have difficulties developing a stable identity. Unlike other aspects of psychopathology, this was independent of the initial weight. Thus, in addition to the level of underweight and other aspects of psychopathology, difficulties in identity development constitute a relevant aspect of illness severity in AN. This recommends consideration of identity development during treatment.

Content planning for a standard 250-word Abstract



Writing an Abstract (1)

Q1: Why did we start? (Background)

A1: Part 3 of Introduction

Q2: What did we do? (Methods)

A2: Part 4 of Introduction;
Study design subsection of Methods

Q3: What did we find? (Results)

A3: Part 1 of Discussion;
(maybe) Part 4 of Introduction

Q4: What does it mean? (Conclusion)

A4: Message statement; Conclusion

***ab*, out + *trahere*, to pull = abstract**

“Pull out”: Select highlights from each section of the paper

Qualities of a good abstract

- Compliant
- Coherent
- Complete
- Correct

Writing an Abstract (2)

Step 1: Write your **conclusion**
(message statement)



Step 2: Include **results that directly support conclusion** (primary outcomes only)



Step 3: Include **methods for all results**
described



Step 4: Include enough **background to make sense of and align with conclusion**

Ensure that

- ✓ Background and Conclusion are aligned
- ✓ All methods have results
- ✓ All results are needed to support the Conclusion
- ✓ Format and details follow reporting guidelines and author instructions
(Use reporting guidelines even if author instructions don't mention them)

Avoid “spin”



- “[Spin involves the] use of specific reporting strategies, from whatever motive, to **highlight that the experimental treatment was beneficial, despite a statistically nonsignificant difference for the primary endpoint, or to distract the reader from statistically nonsignificant results.**”¹
 - Be aware of confirmation bias
- **Highlight clinical relevance** and not statistical significance
 - Interpret effect sizes
 - Interpret precision estimates, e.g., 95% Confidence Intervals

Research on “spin” and hype in biomedical literature

- **Boutron I, et al. Reporting and interpretation of randomized controlled trials with statistically nonsignificant results for primary outcomes. **JAMA**. 2010. doi: [10.1001/jama.2010.651](https://doi.org/10.1001/jama.2010.651)
- **Boutron I, et al. Impact of spin in the abstracts of articles reporting results of randomized controlled trials in the field of cancer: The SPIIN randomized controlled trial. **J Clin Oncol**. 2015. doi: [10.1200/JCO.2014.56.7503](https://doi.org/10.1200/JCO.2014.56.7503)
- **Otte WM, et al. Analysis of 567,758 randomised controlled trials published over 30 years reveals trends in phrases used to discuss results that do not reach statistical significance. **PLoS Biol**. 2022. doi: [10.1371/journal.pbio.3001562](https://doi.org/10.1371/journal.pbio.3001562)
- **Shirafkan H, et al. The reporting quality and spin of randomized controlled trials of endometriosis pain: Methodological study based on CONSORT extension on abstracts. **PLoS ONE**. 2024. doi: [10.1371/journal.pone.0302108](https://doi.org/10.1371/journal.pone.0302108)
- Lazarus C, et al. Classification and prevalence of spin in abstracts of non-randomized studies evaluating an intervention. **BMC Med Res Methodol**. 2015. doi: [10.1186/s12874-015-0079-x](https://doi.org/10.1186/s12874-015-0079-x)
- Yuan M, et al. “Spin” in plastic surgery randomized controlled trials with statistically nonsignificant primary outcomes: A systematic review. **Plast Reconstr Surg**. 2023. doi: [10.1097/PRS.00000000000009937](https://doi.org/10.1097/PRS.00000000000009937)
- Wu J, et al. Assessing “spin” In urology randomized controlled trials with statistically nonsignificant primary outcomes. **J Urol**. 2023. doi: [10.1097/JU.00000000000003105](https://doi.org/10.1097/JU.00000000000003105)
- Millar N, et al. Promotional language (hype) in abstracts of publications of National Institutes of Health–funded research, 1985-2020. **JAMA Netw Open**. 2023. doi: [10.1001/jamanetworkopen.2023.48706](https://doi.org/10.1001/jamanetworkopen.2023.48706)
- Edlinger, M. et al. Presence and consequences of positive words in scientific abstracts. **Scientometrics**. 2023. doi: [10.1007/s11192-023-04864-6](https://doi.org/10.1007/s11192-023-04864-6)

Have a consistent message across the paper

> [Front Immunol](#). 2025 Jan 23;16:1511827. doi: 10.3389/fimmu.2025.1511827. eCollection 2025.

Recent trends in research on the role of cholesterol in leukemia: a bibliometric and visualization study

Huijuan Lv ¹, Ke Lu ², Ximing Wang ³, Yanfang Zhang ⁴, Mengqi Zhuang ¹, Jing Li ¹, Keli Su ¹, Wen Gao ⁵

Affiliations + expand

PMID: 39917295 PMCID: PMC11799240 DOI: 10.3389/fimmu.2025.1511827

Abstract

Discussion: Our findings emphasize cholesterol's significance in leukemia, indicating its potential as a therapeutic target. Further exploration at the intersection of cholesterol metabolism and leukemia requires multidisciplinary collaboration.

Conclusion: This bibliometric study delineates the evolving research landscape on cholesterol's role in leukemia, pinpointing emerging trends and future research directions to inform effective therapeutic strategies.

WRONG

Main article 5 Conclusion

The role of cholesterol in leukemia is a burgeoning area of research that provides a critical basis for understanding tumor biology and developing innovative therapeutic approaches. Our bibliometric analysis revealed significant trends in publication growth, geographic disparities, influential authors, and thematic directions in the field. The extensive body of research on cholesterol's role in leukemia, including 1,220 publications from 1980 to 2024, highlights its critical involvement in tumor cell survival, proliferation, and treatment resistance, with particular focus on areas like STAT3 signaling and multidrug resistance. While this substantial evidence base supports considering cholesterol as a promising therapeutic target, further experimental and clinical validation is necessary to confirm the efficacy of cholesterol-related interventions in enhancing leukemia treatments. By fostering greater collaboration, enhancing the quality of research, and prioritizing interdisciplinary studies, we can harness the potential of cholesterol-related research to improve clinical outcomes for leukemia patients.

Have a consistent message across the paper

Abstract

Conclusions These findings identify ADAM10 as an attractive therapeutic target for the future treatment of acute leukemias.

Main article

Conclusion

In conclusion, ADAM10 might represent a novel therapeutic target to treat acute leukemias, both ALL and AML. Ultra-sensitive proteomics allowed addressing the minute population of in vivo dormant PDX leukemia stem cells, while in vivo CRISPR/Cas9 dropout screens

> Mol Cancer. 2023 Jul 8;22(1):107. doi: 10.1186/s12943-023-01803-0.

Combined proteomics and CRISPR-Cas9 screens in PDX identify ADAM10 as essential for leukemia in vivo

Ehsan Bahrami ^{# 1}, Jan Philipp Schmid ^{# 1 2}, Vindi Jurinovic ^{1 3}, Martin Becker ¹, Anna-Katharina Wirth ¹, Romina Ludwig ^{1 2}, Sophie Kreissig ⁴, Tania Vanessa Duque Angel ¹, Diana Amend ¹, Katharina Hunt ¹, Rupert Öllinger ^{5 6}, Roland Rad ^{2 5 6}, Joris Maximilian Frenz ^{7 8}, Maria Solovey ^{9 10}, Frank Ziemann ³, Matthias Mann ¹¹, Binje Vick ^{1 2}, Christian Wichmann ⁴, Tobias Herold ^{1 2 3}, Ashok Kumar Jayavelu ^{# 7 8 11}, Irmela Jeremias ^{# 12 13 14}

Affiliations [+ expand](#)

PMID: 37422628 PMCID: PMC10329331 DOI: 10.1186/s12943-023-01803-0

Use direct and simple language



Methods: PSMA-I&T (DOTAGA-(l-y)fk(sub-KuE)) and its derivative in which the DOTAGA chelator was replaced by NODAGA (NODAGA-(l-y)fk(sub-KuE)), herein reported as DOTAGA-PSMA-I&T and NODAGA-PSMA-I&T, respectively, were labeled with ^{61}Cu and compared with ^{68}Ga -DOTAGA-PSMA-I&T, ^{68}Ga -NODAGA-PSMA-I&T, ^{68}Ga -PSMA-11, and ^{18}F -PSMA-1007. In vitro (lipophilicity, affinity, cellular uptake, and distribution) and in vivo (PET/CT, biodistribution, and stability) studies were performed in LNCaP cells and xenografts. Human dosimetry estimates were calculated for ^{61}Cu -NODAGA-PSMA-I&T. First-in-human imaging with ^{61}Cu -NODAGA-PSMA-I&T was performed in a patient with metastatic prostate cancer. **Results:** ^{61}Cu -DOTAGA-PSMA-I&T and ^{61}Cu -NODAGA-PSMA-I&T were synthesized with radiochemical purity of more than 97%, at an apparent molar activity of 24 MBq/nmol, without purification after labeling. In vitro, natural Cu ($^{\text{nat}}\text{Cu}$)-DOTAGA-PSMA-I&T and $^{\text{nat}}\text{Cu}$ -NODAGA-PSMA-I&T showed high affinity for PSMA (inhibitory concentration of 50%, 11.2 ± 2.3 and 9.3 ± 1.8 nM, respectively), although lower than the reference $^{\text{nat}}\text{Ga}$ -PSMA-11 (inhibitory concentration of 50%, 2.4 ± 0.4 nM). Their cellular uptake and distribution were comparable to those of ^{68}Ga -PSMA-11. In vivo, ^{61}Cu -NODAGA-PSMA-I&T showed significantly lower uptake in nontargeted tissues than ^{61}Cu -DOTAGA-PSMA-I&T and higher tumor uptake (14.0 ± 5.0 percentage injected activity per gram of tissue [%IA/g]) than ^{61}Cu -DOTAGA-PSMA-I&T (6.06 ± 0.25 %IA/g, $P = 0.0059$), ^{68}Ga -PSMA-11 (10.2 ± 1.5 %IA/g, $P = 0.0972$), and ^{18}F -PSMA-1007 (9.70 ± 2.57 %IA/g, $P = 0.080$) at 1 h after injection. Tumor uptake was also higher for ^{61}Cu -NODAGA-PSMA-I&T at 4 h after injection (10.7 ± 3.3 %IA/g) than for ^{61}Cu -DOTAGA-PSMA-I&T (4.88 ± 0.63 %IA/g, $P = 0.0014$) and ^{18}F -PSMA-1007 (6.28 ± 2.19 %IA/g, $P = 0.0145$). Tumor-to-nontumor ratios of ^{61}Cu -NODAGA-PSMA-I&T were superior to those of ^{61}Cu -DOTAGA-PSMA-I&T and comparable to those of ^{68}Ga -PSMA-11 and ^{18}F -PSMA-1007 at 1 h after injection and increased significantly between 1 and 4 h after injection in most cases. Human dosimetry estimates for ^{61}Cu -NODAGA-PSMA-I&T were similar to the ones reported for ^{18}F -PSMA ligands. First-in-human imaging demonstrated multifocal osseous and hepatic metastases.

Use simple, clear, clutter-free visualizations in conference abstracts

Remove gridlines: use whitespace to direct the eyes

Create in greyscale; add colour strategically

Table 1: Details of Patient on the basis of alloimmunisation			
	Alloimmunised Patients	Non-Alloimmunised Patients	Overall
Number of Patients	19	86	105
Sex			
m	14	63	77
w	5	23	28
Blood Group (RhDneg)			
A	9	24	33
B	1	11	12
AB	0	4	4
O	9	47	56
Diagnosis			
Cardiac/Thoracic/Vascular intervention	8	32	40
Polytrauma	2	9	11
GI Bleeding	3	21	24
Bleeding any other location	6	14	20
Other	0	8	8
Not performed	0	2	2
Outcome			
Survival	17	47	64
Death due to Diagnosis	2	37	39
lost of FU	0	2	2
Mean Number of Transfusion			
EC	5.29 (range: 4 - 77)	3.25 (range: 1 - 83)	3.62 (range: 1 - 83)
TC	0.68 (range: 0 - 16)	0.72 (range: 0 - 37)	0.77 (range: 0 - 37)
FFP	8.05 (range: 0 - 89)	5.53 (range: 0 - 238)	5.98 (range: 0 - 238)
Mean Number of Transfusion within 48h of the Rhesus-Conversion			
EC	10.3 (range: 1 - 40)	9.02 (range: 1 - 55)	9.25 (range: 1 - 55)
TC	1.42 (range: 0 - 12)	1.78 (range: 0 - 11)	1.71 (range: 0 - 12)
FFP	11.89 (range: 0 - 55)	7.12 (range: 0 - 40)	7.98 (range: 0 - 55)
Antibody Screening Test after Rhesus-Conversion			
Positive	19	-	-
Negative	-	30	-
mean days after Rhesus-Conversion	200.06 (range: 2 - 1200)	117.63 (range: 7 - 1401)	-
Not performed	-	56	-
Antibody formation			
Anti-D	13	-	-
Anti-C	7	-	-
Anti-E	5	-	-
Anti-Cw	1	-	-
Anti-K	1	-	-
Anti-Jka	1	-	-
Anti-Lea	1	-	-
Anti-Lus	1	-	-
Anti-s	1	-	-
no specificity	2	-	-

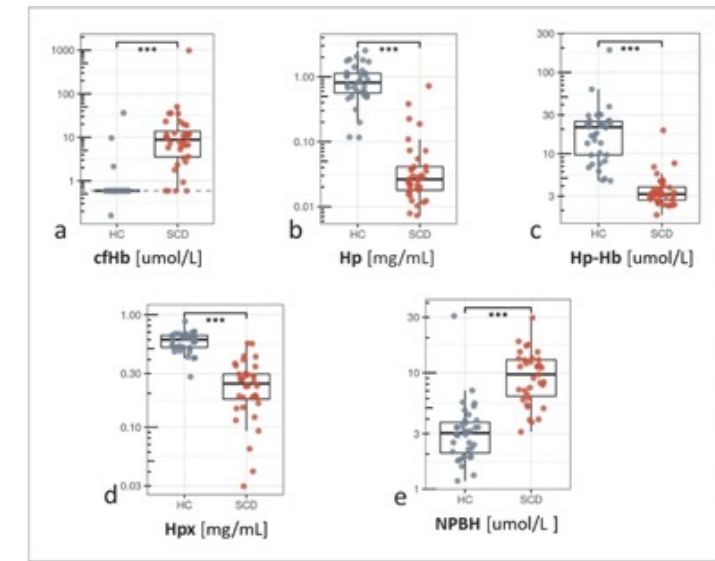
Examples taken from Abstracts of the Swiss Oncology & Hematology Congress 2024, published in [Swiss Med Wkly 2024;154:Suppl 283](#)

Table 1: Patient demographics and bleeding outcomes of cohort A	
Parameter	N=112
Male, n (%)	112 (100.0)
Severity at baseline	
Severe (<1% FVIII activity)	112 (100.0)
Age (years), mean (SD)	28.2 (21.6)
Age group, n (%)	
Children (0-11 years)	40 (35.7)
Adolescents (12-17 years)	7 (6.3)
Adults (18-64 years)	62 (55.4)
Elderly (≥65 years)	3 (2.7)
Ethnicity, n (%)	
White	100 (89.3)
Black or African American	2 (1.8)
Asian	2 (1.8)
Not reported	8 (7.1)
FVIII inhibitors history ^a , n (%)	
Yes	4 (3.6)
Unknown	108 (96.4)
Previous hemophilia A treatments, n (%)	
Yes	106 (94.6)
No	6 (5.4)
Calculated ABR ^b , mean (SD)	
Treated spontaneous bleeds	0.25 (0.64)
Treated joint bleeds	0.44 (1.05)
Treated target joint bleeds	0.04 (0.21)
Location of treated bleeds, n patients (%) – n treated bleeds	
Joints	49 (43.8) – 62
Muscle	3 (2.7) – 3
Other	33 (29.5) – 43

^aHighest measurement before start of treatment

^bBleeds due to surgery/procedure were included in the secondary endpoints. Calculated ABR = Number of treated bleeds for the whole study duration / study duration in years; with study duration defined as duration = (max. visit date with treated bleed assessment – date of first emicizumab administration)/365.25.

ABR, annualized bleeding rate; FVIII, factor VIII; SD, standard deviation



Good practice for conference abstracts and presentations: GPCAP (Foster C, et al. Res Integr Peer Rev. 2019. doi: [10.1186/s41073-019-0070-x](#))

AI tools for scientific writing



Literature search

- **Search:** Elicit, Consensus, Perplexity, Semantic Scholar, Scopus AI, scite,
- **Knowledge map:** ResearchRabbit, Connected Papers



Planning

- **Text generators:** ChatGPT, Bard, Bing Chat, Claude
- **Journal finders:** Trinka, Manuscript Matcher by EndNote, Elsevier's journal finder portal



Editing

- **Text generators:** ChatGPT, Gemini, Claude
- **Language checkers:** Paperpal, ProWritingAid, Grammarly



Active reading + Note-taking

- **Summarizers and readers:** Elicit, Humata, Semantic Scholar, ChatPDF, NotebookLM
- **Note-taking tools:** Evernote, Notion, Obsidian, OneNote



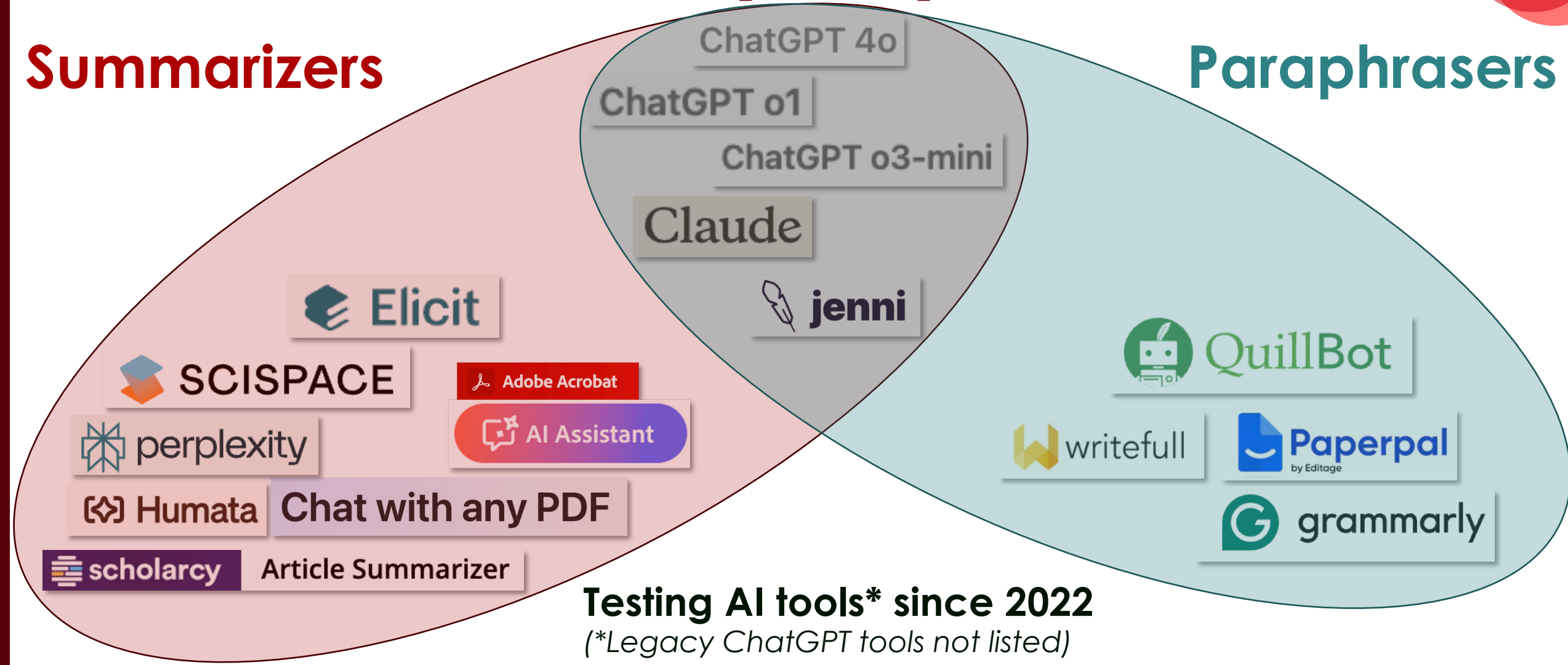
Writing

- **Text generators:** ChatGPT, Gemini, Jenni AI
- **Paraphrasers:** Writefull, Quillbot
- **Translators:** DeepL
- **Data visualizers:** Julius AI, Tableau, Gemini

AI summarizers & paraphraser

Summarizers

Paraphraser



Testing AI tools* since 2022
(*Legacy ChatGPT tools not listed)

Disclosure: I have no conflicts of interest. I used to work for the company that created Paperpal as a freelance scientific editor. I had no direct role in the tool's development. The tool was launched long after my contract with the company had ended.

AI summarizers have improved since 2022, but...

None of the summaries are fit-for-purpose

Issues:

- **Unstructured** (bulleted list ≠ structure)
- **Incomplete**, sometimes **vague**
- **Incorrect** (“**hallucinated**”) content
- **Redundant** content
- **Generic writing style** (easily flagged as “AI-generated”)
 - High likelihood of **plagiarism**, if used as is

**Advanced
“reasoning”
models don’t
“think”**

AI paraphraser have improved since 2022, but...

None of the paraphrases are fit-for-purpose

Issues:

- **Plagiarism** (insufficient reworking of the text)
- **Poor-quality writing:**
 - Generic style (easily identified as AI generated)
 - Misrepresenting author's intent
 - Hard to read
 - Does not fulfil the purpose of a paraphrase

**Advanced
“reasoning”
models don’t
“think”**

AI paraphraser produce poor-quality writing

Original text

Overall, a U-shaped relationship has been established between alcohol use and IHD, in that light-to-moderate drinking with no heavy episodic drinking (HED) showed a protective association with IHD,20-23 whereas HED and higher average levels of alcohol consumption showed a harmful association.21,24,25

Older output

< 1 of 1 >



Research has demonstrated a U-shaped correlation between alcohol consumption and ischemic heart disease (IHD). Specifically, consuming light to moderate amounts of alcohol without engaging in heavy episodic drinking (HED) has been associated with a protective effect against IHD.20-23 In contrast, both HED and higher average alcohol intake have been linked to detrimental effects on IHD.21,24,25

New & improved output

< 1 of 1 >



Based on the available information, it

appears that there is a U-shaped relationship between alcohol consumption and IHD. Specifically, moderate drinking with no heavy

episodic drinking has been found to have a protective effect against IHD.

On the other hand, heavy episodic drinking and higher average levels of alcohol consumption have been associated with increased risk of IHD.

These findings have been supported by various studies, including those conducted by Ramos et al. (2004) and Rehm et al. (2010).

Redundant: can we base inferences on *unavailable* information?

Wrong: association $\neq$ causation

Illogical: “on the other hand” implies a contrasting feature of the same subject matter

Bad flow: sentences remain non-parallel

Unclear: which findings?

Unethical: 5 citations cut down to 2, and misplaced

What do you miss out on if you use AI for summarizing and paraphrasing when writing your first draft?

A scientific article presents an **argument, rooted in assumptions** within scientific knowledge and methodology.

- Critical reading for **rigor**
- Understanding author's **intent and choices**
- Understanding **nuance and biases**
- Ability to **extrapolate**
- Building **your knowledge map**
- Improving **your writing skills**

What researchers have found

Hwang T, et al. **Can ChatGPT assist authors with abstract writing in medical journals? Evaluating the quality of scientific abstracts generated by ChatGPT and original abstracts.** PLoS ONE. 2024. doi: [10.1371/journal.pone.0297701](https://doi.org/10.1371/journal.pone.0297701)
Models: GPT 3.5 and GPT 4

Conclusions

While ChatGPT could generate more readable abstracts, their overall quality was inferior to the original abstracts. Yet, its proficiency to concisely relay key information with minimal error holds promise for medical research and warrants further investigations to fully ascertain the LLM's applicability in this domain.

Hsu T, et al. **Quality and correctness of AI-generated versus human-written abstracts in psychiatric research papers.** Psychiatry Res. 2024. doi: [10.1016/j.psychres.2024.116145](https://doi.org/10.1016/j.psychres.2024.116145)
Model: GPT 3.5

In conclusion, abstracts generated by ChatGPT may be of higher quality in a structured format than in an unstructured format. Similarity and plagiarism may not be the major concerns in AI-generated texts. Although AI algorithms can replicate some aspects of the human process of constructing abstracts for psychiatric papers, they produce critical errors in conclusions. Further comprehensive studies are warranted to replicate our findings and to extend them to include different study designs and journals.

Gao CA, et al. **Comparing scientific abstracts generated by ChatGPT to real abstracts with detectors and blinded human reviewers.** npj Digit Med. 2023. doi: [10.1038/s41746-023-00819-6](https://doi.org/10.1038/s41746-023-00819-6)
Model: GPT 3.5

through a plagiarism detector website and iThenticate (higher scores meaning more matching text found). When given a mixture of original and general abstracts, blinded human reviewers correctly identified 68% of generated abstracts as being generated by ChatGPT, but incorrectly identified 14% of original abstracts as being generated. Reviewers indicated that it was surprisingly difficult to differentiate between the two, though abstracts they suspected were generated were vaguer and more formulaic. ChatGPT writes believable scientific abstracts, though with completely generated data. Depending on publisher-specific guidelines, AI

Holland AM, et al. **Comparison of medical research abstracts written by surgical trainees and senior surgeons or generated by large language models.** JAMA Netw Open. 2024. doi: [10.1001/jamanetworkopen.2024.25373](https://doi.org/10.1001/jamanetworkopen.2024.25373)
Models: GPT 3.5 and GPT 4

This study stands apart from prior work on AI-writing because the chatbots were provided with more than just a title and journal name.⁷⁷ By training chatbots to generate text in our group's writing style and inputting background, previously published studies, and statistically analyzed data for each abstract, we combatted the tendency for chatbots to hallucinate results. We suspect that as chatbots become more sophisticated, the potential to generate abstracts may surpass the ability of some researchers and may expand to generating full manuscripts.

Bias

The surgeon called the nurse because she was late. Who was late?



The sentence is ambiguous because "she" could refer to either **the surgeon** or **the nurse**.

- If "she" refers to **the nurse**, the sentence means the surgeon called because the nurse was late.
- If "she" refers to **the surgeon**, it means the surgeon called the nurse because the surgeon was late.

The nurse called the surgeon because she was late. Who was late?



In the sentence:

"The nurse called the surgeon because she was late."

The pronoun "**she**" most likely refers to **the nurse**, since "she" generally refers to the most recently mentioned female noun (which is "nurse" in this case).

So, based on standard grammar rules, the nurse was late.

The surgeon called the nurse because he was late. Who was late?



In this sentence, "**he**" most likely refers to **the surgeon**, meaning the surgeon was late.

Since "he" is a masculine pronoun and the only explicitly mentioned male-referable noun is "the surgeon," the natural interpretation is that the surgeon was late.



The nurse called the surgeon because he was late. Who was late?

In this sentence, "**he**" clearly refers to **the surgeon**, because "he" is a masculine pronoun and the only male-referable noun in the sentence is "the surgeon." So, the surgeon was the one who was late.

o1 model did better in the latest test, but what if the bias was not an issue of grammar rules?

What happens if the bias is hard to detect?

Generate three profiles of patients with childhood leukemia

1. Manny J. – B-cell Acute Lymphoblastic Leukemia (B-ALL)

Demographics:

- Name: Manny J.
- Age: 4 years old
- Sex: Male
- Ethnicity: Hispanic
- Location: San Antonio, Texas, USA

2. Sarah W. – T-cell Acute Lymphoblastic Leukemia (T-ALL)

Demographics:

- Name: Sarah W.
- Age: 2 years old
- Sex: Female
- Ethnicity: White
- Location: Boston, Massachusetts, USA

3. Tyler R. – Acute Myeloid Leukemia (AML)

Demographics:

- Name: Tyler R.
- Age: 14 years old
- Sex: Male
- Ethnicity: Black
- Location: Detroit, Michigan, USA

Patients from Switzerland

1. Anna Müller – B-cell Acute Lymphoblastic Leukemia (B-ALL)

Demographics

- Name: Anna Müller
- Age: 5 years old
- Sex: Female
- Ethnicity: Swiss (German-speaking region)
- Location: Zurich, Switzerland

2. Luc Martin – T-cell Acute Lymphoblastic Leukemia (T-ALL)

Demographics

- Name: Luc Martin
- Age: 7 years old
- Sex: Male
- Ethnicity: Swiss (French-speaking region)
- Location: Geneva, Switzerland

3. Giulia Rossi – Acute Myeloid Leukemia (AML)

Demographics

- Name: Giulia Rossi
- Age: 12 years old
- Sex: Female
- Ethnicity: Swiss-Italian
- Location: Lugano, Ticino, Switzerland

Further reading

- Zack T, et al. **Assessing the potential of GPT-4 to perpetuate racial and gender biases in health care: a model evaluation study.** Lancet Digit Health. 2024. doi: [10.1016/S2589-7500\(23\)00225-X](https://doi.org/10.1016/S2589-7500(23)00225-X)
- Ho JQH, et al. **Gender biases within artificial intelligence and ChatGPT: Evidence, sources of bias and solutions.** CHAB. 2025. doi: [10.1016/j.chbah.2025.100145](https://doi.org/10.1016/j.chbah.2025.100145)

LLMs preferentially cite highly cited papers

Large Language Models Reflect Human Citation Patterns with a Heightened Citation Bias¹

Alarm: Retracted articles on cancer imaging are not only continuously cited by publications but also used by ChatGPT to answer questions²

- Exacerbate bias
- Mislead reader
- Miss nuance, e.g., LLMs will not interrogate if the arguments made in the cited articles are still valid
- Miss recent developments, e.g., ChatGPT-o1 identifies only CONSORT guidelines RCT reporting but not SAGER (SAGER recommended by ICMJE and top-tier journals)

LLMs will always hallucinate

Who was the first to show that oxytocin could induce labor?

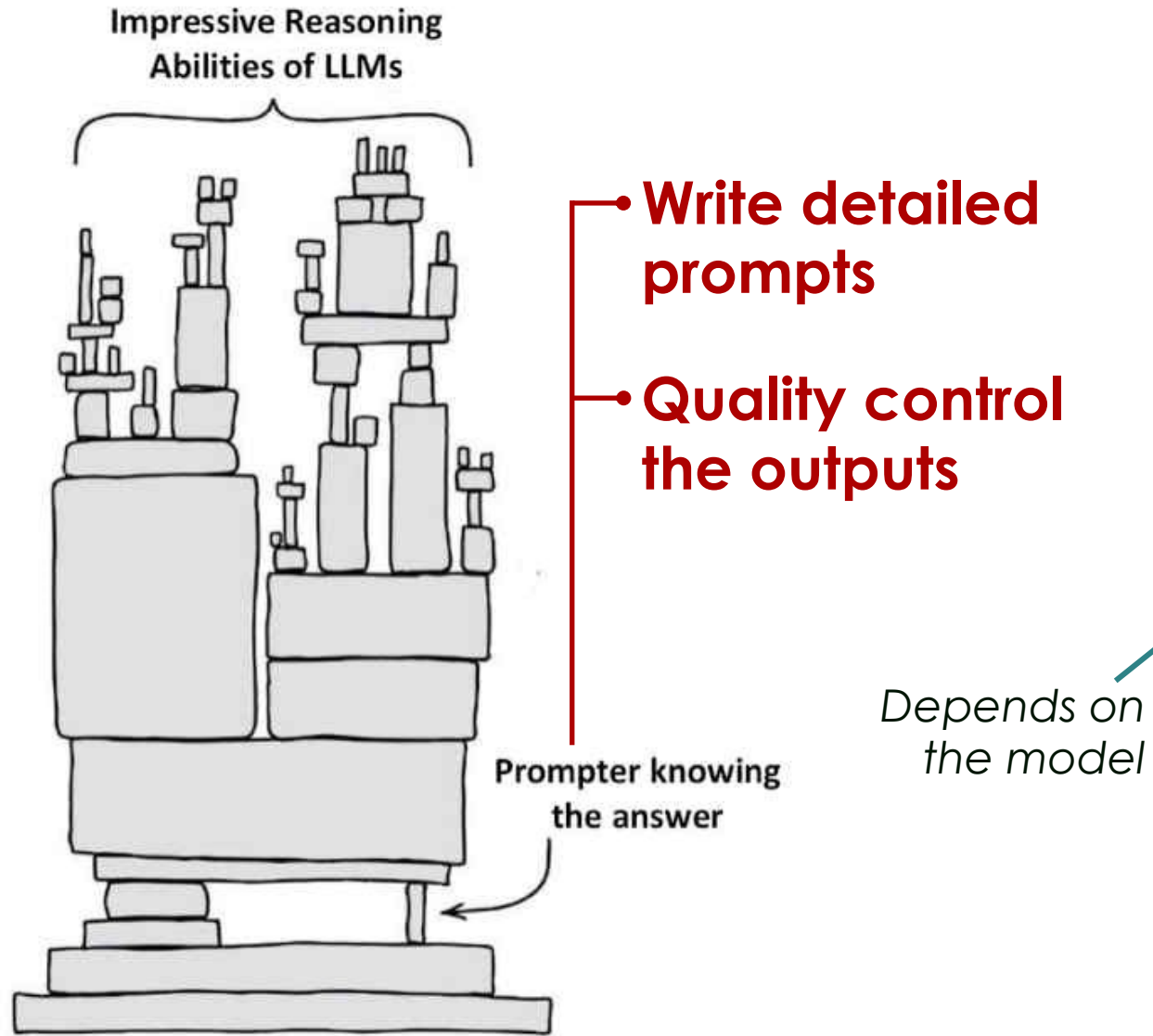
Reasoned for 12 seconds ▾

The key early work demonstrating that a substance from the posterior pituitary could trigger uterine contractions—and thus induce labor—was done by the British physiologist Sir Henry Hallett Dale. In 1906, Dale observed that extracts from the posterior lobe of the pituitary gland caused powerful contractions of the uterus in animal experiments. Although the hormone itself (later named “oxytocin”) was not purified or synthesized until decades later, Dale’s work is generally cited as the first clear demonstration that what we now call oxytocin could induce labor. ✗

In 1906, Sir Henry Hallett Dale observed the stimulant effects of pituitary (infundibular) extracts on the uterine muscle,⁴⁹ and this activity was confirmed in 1909 by Frankl-Hochwart and Frohlich.⁵⁰ William Blair Bell, later founder of the UK Royal College of Obstetricians and Gynaecologists in 1929, received samples from Sir Henry Hallett Dale and shared his first clinical results of the therapeutic effects of the pituitary infundibulum extracts.⁵¹ This extract became a popular hormonal method of labor induction over the next few

Patabendige M, et al. Am J Obstet Gynecol MFM. 2025.
doi: [10.1016/j.ajogmf.2024.101515](https://doi.org/10.1016/j.ajogmf.2024.101515)
Original source: Bell WB. Br Med J. 1909. doi: [10.1136/bmj.2.2553.1609](https://doi.org/10.1136/bmj.2.2553.1609)

Use AI efficiently (1)



Prompt structure

1. CONTEXT

1. Persona for the AI
 - Knowledge, expertise
 - Character traits
2. Information about you
3. Context for the task

2. GOAL

1. Task description
2. Goal of the task
3. **Guidelines & constraints (Important!)**

3. PROCESS OF GENERATION

1. Chain-of-thought reasoning
2. Start and stop points

4. OUTPUT FEATURES

1. Language
2. Structure (standards & templates)
3. Formatting (e.g., references)

Use AI without compromising your learning

Do not approach AI with a blank page.

- Gather your requirements: reporting guidelines, journal instructions, analyzed data, writing style, etc.
- Create your outline.
- (Even better) Write your first draft yourself.

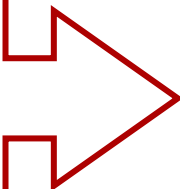
Use AI efficiently (2)

Document use

- Rename chat threads; include date in the name
- Use “projects” or “notebooks” features
- Keep a searchable log of your interaction with the tool.

Note down the following:

- Name of tool, model, version
- Date of use
- User's name (if writing collaboratively)
- Prompts
- Input
- Raw outputs



Journal may ask you for these.

Use AI efficiently (3)

Quality control of AI outputs

Critical thinking is an act of self-reflection:

- What are my benchmarks for quality?
- Do I have enough experience and knowledge to make these judgements?

Example checklist for academic writing

I. Presentation

- ☐ Style
- ☐ Tone
- ☐ Clarity
- ☐ Grammar

II. Factuality

- ☐ Accuracy
- ☐ Precision
- ☐ Completeness
- ☐ Impression

III. Structure

- ☐ Standard or template
- ☐ Reporting guideline

Use AI ethically (1)

Make informed decisions

- Is AI **allowed**?
- Do I **need** to use AI? What do I **gain** by using AI?
- Which **tool and model** will I use? What are the **limitations** of the tool and model?
- Will I use **the free or the paid version**? What do I miss out on if I use the free version?
- Who **developed** the tool? How did they do it? Where are their servers? Is it open source?
- AI tools are **resource intensive**: does this matter to me?
- What **information will I share** with the tool?
- Is the information I share **confidential**?
- What will happen to my **data**? Will it be **stored**, if so, where? Will it be used for **training**? Will it be **shared with third parties**?
- In which **stages of the writing process** will I use AI?
- Are there **tutorials** on how to use the tool effectively?

Use AI ethically (2)

Be a responsible author

Let your co-authors know if you are using generative AI.

1. Researchers must take **full responsibility** for any AI-generated/augmented content.
2. AI **cannot be an author**.
3. AI-generated information **cannot be cited**.
4. AI use **must be disclosed in manuscripts** and cover letters.
5. Use of **AI for peer review is not allowed**.
(Some publishers allow you to use AI to “improve the quality of written feedback”. Use cautiously!)

ICMJE INTERNATIONAL COMMITTEE of
MEDICAL JOURNAL EDITORS



Use AI ethically (3)

Disclose use

Check the author instructions for **your journal & publisher.**

Disclosure statement: When? Where? How?

- Most journals ask for a disclosure statement in Acknowledgments section.
- If used for data collection, analysis, or figure generation, disclose in Methods section.¹
- Some journals have a separate disclosure section with specific wording. →
- **Springer Nature states that “AI-assisted copy editing” need not be disclosed.**
- Wiley has a helpful, detailed guide: [link](#)

In which section of the manuscript should authors disclose the use of AI-assisted technologies, and where will this statement appear in the chapter or work?

We ask authors who have used AI or AI-assisted tools to insert a statement at the end of their manuscript immediately above the references or bibliography entitled ‘Declaration of AI and AI-assisted technologies in the writing process’. In that statement, we ask authors to specify the tool that was used and the reason for using the tool. We suggest that authors follow this format when preparing their statement:

During the preparation of this work the author(s) used [NAME TOOL / SERVICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

1. International Committee of Medical Journal Editors (ICMJE). Recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals. Update January 2024.
2. Elsevier. The use of generative AI and AI-assisted technologies in writing for Elsevier. Available from : www.elsevier.com/about/policies-and-standards/the-use-of-generative-ai-and-ai-assisted-technologies-in-writing-for-elsevier. Last updated 18 August 2023. Accessed 23 May 2024.



“I want AI to do the writing so I can do science.”



Writing is Thinking is Doing Science

Thank you for your participation!



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Click on the image

Exercise

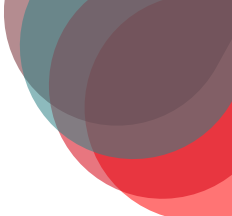
Exercise 1: Abstract writing

- Working in pairs, draft an abstract suited to the article format assigned to you. Use MS Word.
- Time: 1 hour 15 minutes
- You are **allowed to use AI**.
Disclose AI use below the abstract.

Exercise 2: Abstract peer review

PART 1

- **Share** your abstract by uploading it to the resource page.
- Working in pairs, **peer review the abstract assigned to you**. Use 'Comments' feature in MS Word.
- **You are not allowed to use AI to review the abstract.**
- **Time: 30 minutes**
- **Upload your review.**
- **Read the review comments and the original abstract** (now available to you).
- **Time: 5 minutes**



If you've written the abstract for the paper on...	Review the abstract for the paper on...
Psychoeducational intervention (Journal: <i>JCO</i>)	AML (Journal: <i>Front Oncol</i>)
AML (Journal: <i>Front Oncol</i>)	Melanoma (Journal: <i>JCO</i>)
Melanoma (Journal: <i>JCO</i>)	BRCA2mut (Journal: <i>Nature</i>)
BRCA2mut (Journal: <i>Nature</i>)	CLL/SLL (Journal: <i>JCO</i>)
CLL/SLL (Journal: <i>JCO</i>)	NSCLC (Journal: <i>Front Oncol</i>)
NSCLC (Journal: <i>Front Oncol</i>)	Psychoeducational intervention (Journal: <i>JCO</i>)

Exercise 2: Abstract peer review

PART 2

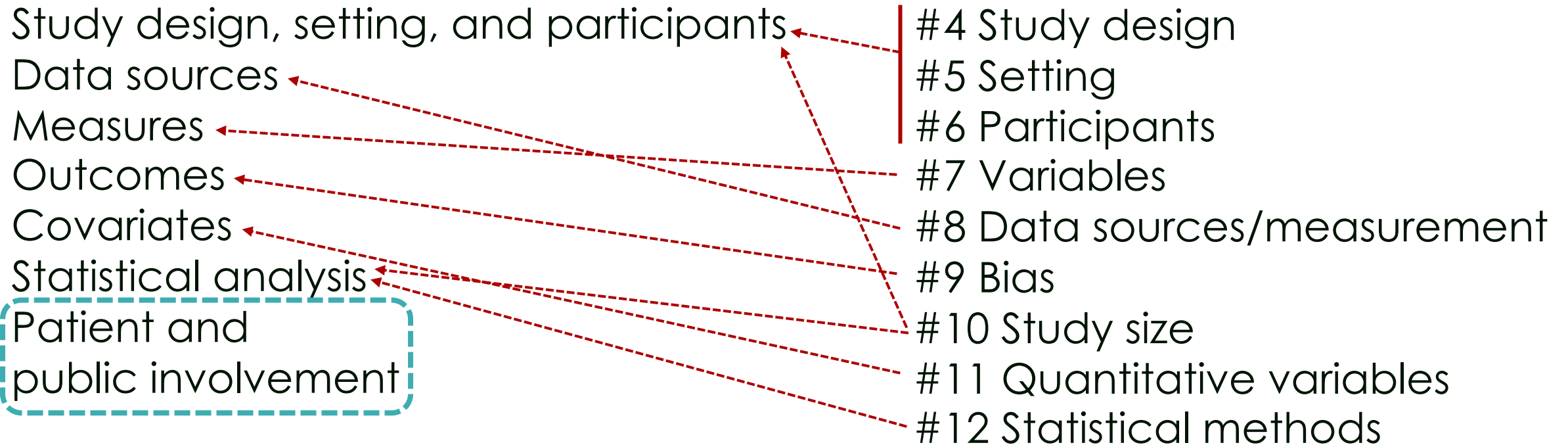
- **Self-reflection & group discussion: 30 minutes**
 - What was easy or difficult about writing an abstract?
 - How did your abstract compare to the original? What did you do well, and what could be improved?
 - How will this exercise change the way you approach writing abstracts in the future?
 - Did you use AI? What was your experience?
 - If you were to teach someone else how to write an abstract, what key advice would you give them?
 - What was easy or difficult about peer reviewing an abstract?

Extra slides

Reporting STROBE checklist items in a *BMJ* article

The BMJ Methods

STROBE Methods Checklist

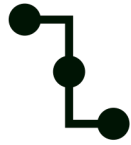


Why you should outline your paper



Organization

- Focus on structure, at the document- and language-level
- Organize and reorganize easily
- Keep on track (versioning)
- Makes formatting easier
- Avoid “writer’s block”



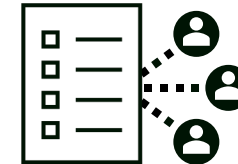
Argumentation

- Build a logical chain of thought from Introduction to Conclusion
- Link argument to evidence
- Write effective paragraphs
- Focus on the message statement



Ethical writing

Helps with citing accurately (avoid plagiarism)



Collaboration

Get feedback before investing time in writing out full paragraphs