

## BASIC STRUCTURE AND TYPES OF SCIENTIFIC PAPERS

Wilfred CG Peh  
Singapore Medical Journal,  
National University of Singapore,  
& Khoo Teck Puat Hospital, Singapore



## LECTURE OUTLINE

- Types of scientific writing
- Basic paper structure
- Categories of papers
- Summary



## TYPES OF WRITING

- Whole range including
  - theses
  - books
  - book chapters
  - grant applications
  - technical reports
  - lecture notes



## TYPES OF WRITING

- Journal papers
  - most highly regarded
    - by researchers
    - institutions
  - undergone (rigorous) peer review process



## TYPES OF WRITING

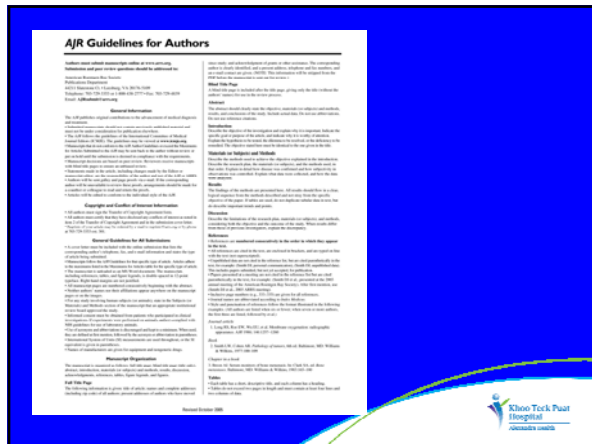
- Journals: many paper types
- Each type of paper
  - specific in nature
  - serves a distinct purpose
  - judged for publication by different criteria



## TYPES OF PAPERS

- Authors should
  - be clear about type of paper they are planning to write
  - construct manuscript
  - according to guidelines for the specific paper type





## BASIC STRUCTURE

- Common to scientific papers
  - especially original articles
  - minor variations depending on journal style
- There is no room for ‘free expression’

## BASIC STRUCTURE

- Standard manuscript: components
  - title, title page
  - abstract, keywords
  - body of paper (IMRAD)
  - tables, graphs, figures
  - references
  - acknowledgements
  - appendices

## BASIC STRUCTURE

### IMRAD

- Introduction
- Methods (or Materials & methods)
- Results And
- Discussion

## BASIC STRUCTURE


- Introduction (What question was asked?)
- Methods (How was it studied?)
- Results (What was found?) And
- Discussion (What do the findings mean?)

## CATEGORIES OF PAPERS

- Journal contents influenced by
  - mission and goals
  - material submitted
- Editor is chiefly responsible for types of papers published
  - aims for a balanced mix



## CATEGORIES OF PAPERS

- Original article
- Case report
- Invited review (review article)
- Systematic review
- Invited commentary



## CATEGORIES OF PAPERS

- Technical note
- Pictorial essay
- Letter to the editor
- Others
- Non-scientific material

**Full Papers**

**Review Articles**


**Short Communications**

**Case Reports**

**Pictorial Reviews**

**Cases of the Month**


**Letters to the Editor**



## CATEGORIES OF PAPERS

Original article


- Most important type of paper
- Provides new information based on original research
- Usually prospective



## CATEGORIES OF PAPERS

Original article - format

- Structured abstract
- Introduction
- Materials and methods
- Results And
- Discussion



## CATEGORIES OF PAPERS

Invited review


- Authoritative, comprehensive and detailed state-of-the art analysis of a specific topic
- Does not introduce new data
- Usually invited by the editor



## CATEGORIES OF PAPERS

Invited review- format

- Unstructured abstract
- Introduction – detailed background including history
- Subheadings - to organise topic
- Take home message
- Many references



## CATEGORIES OF PAPERS

Pictorial essay


- Teaching article that relies on quality of its images
- Text limited, many figures
- Message current and practical
- Emphasises teaching value



## CATEGORIES OF PAPERS

Pictorial essay - format


- Short unstructured or no abstract
- Brief introduction
- Subheadings - optional
- Discussion – optional
- Limited references



## CATEGORIES OF PAPERS

Others


- Depends of mission of the journal
- Contribute to journal character
- E.g. work-in-progress, short communication, historical article



## CATEGORIES OF PAPERS

E.g. - SMJ

- Clinics in Diagnostic Imaging
- Basic Statistics for Doctors
- Evidence-based Medicine
- ECG Series
- Medicine in Stamps

**CME Article**  
**Clinics in diagnostic imaging (150)**

**IMAGES INTERPRETATION**

**CLINICAL COURSE**

**DIAGNOSIS**

**CASE PRESENTATION**



## SCIENTIFIC PAPERS

### What aren't

- Scientific congress updates/news
- Travelling fellowship reports
- Overseas mission reports
- Paper/poster abstracts



## CATEGORIES OF PAPERS

### Non-scientific material

- Do not add to scientific quality
- But add to journal's character
- Provides - information
  - education
  - light reading



**Medicine in Stamps**  
**Wilhelm Conrad Röntgen (1845-1923): a light in the dark**  
Wang Y K, PhD, Lect 1 & 2, HHS, 2013  
Professor of Paediatrics, HKS & a Senior Lecturer of Paediatrics, University of Hong Kong

**W**ilhelm Conrad Röntgen's discovery of X-rays revolutionized medicine and earned him the Nobel Prize in Physics in 1901. His work was a turning point in the history of medicine, opening the way for a new era of diagnostic imaging and surgery. Röntgen's discovery was a result of his persistent curiosity and his determination to explore the unknown.

**REDISCOVERING OF A GLOW** Röntgen was a physicist and an expert in the study of cathode rays. He was interested in the way these rays behaved when they passed through various materials. He discovered that they could pass through thin sheets of metal, which was unexpected at the time. This led him to the discovery of X-rays.

**REMARKS** Röntgen's discovery was a result of his persistent curiosity and his determination to explore the unknown. He was not looking for a discovery when he discovered X-rays. He was simply trying to understand the nature of cathode rays. His discovery was a result of his hard work and his dedication to his field.

**PHILOSOPHY** Röntgen's discovery was a result of his persistent curiosity and his determination to explore the unknown. He was not looking for a discovery when he discovered X-rays. He was simply trying to understand the nature of cathode rays. His discovery was a result of his hard work and his dedication to his field.

**Medicine in Stamps**  
**José Protacio Rizal (1861-1896): Physician and Philippine national hero**  
Lapena P

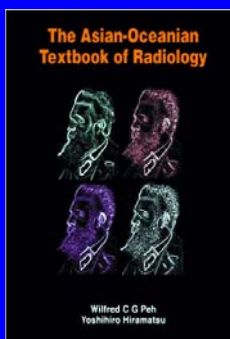
**O**ccasionally the young go to bed thinking that they will be famous. José Protacio Rizal was one of those who did. He was a physician and a national hero. He was a man of many talents and a man of many passions. He was a man who was not afraid to stand up for his beliefs and his country.

**REMARKS** Rizal's discovery was a result of his persistent curiosity and his determination to explore the unknown. He was not looking for a discovery when he discovered X-rays. He was simply trying to understand the nature of cathode rays. His discovery was a result of his hard work and his dedication to his field.

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**The Asian-Oceanian Textbook of Radiology**




Wilfred G D Poh  
Yoshihiro Hiramatsu

**American Journal of Roentgenology 2004; 183:1308**

**Book Review**

The Asian-Oceanian Textbook of Radiology, edited by Wilfred G. D. Poh and Yoshihiro Hiramatsu, is a comprehensive and up-to-date reference work for radiologists in the Asian-Oceanian region. It covers a wide range of topics, from basic radiology to advanced techniques. The book is well-organized and easy to read, making it a valuable resource for both students and practicing radiologists.



**RadioGraphics**

**Scenes from the Past**  
**Sun-dried X Rays!**

Zaloha Y. Jazlina, MB, BS  
Martin L. Waite, FRCP, FRCR





## SUMMARY

- Be familiar with various types of scientific papers
- Follow standard basic structure
  - main body: IMRAD
- Construct manuscript accordingly
  - maximise author's material
  - enhance acceptance

