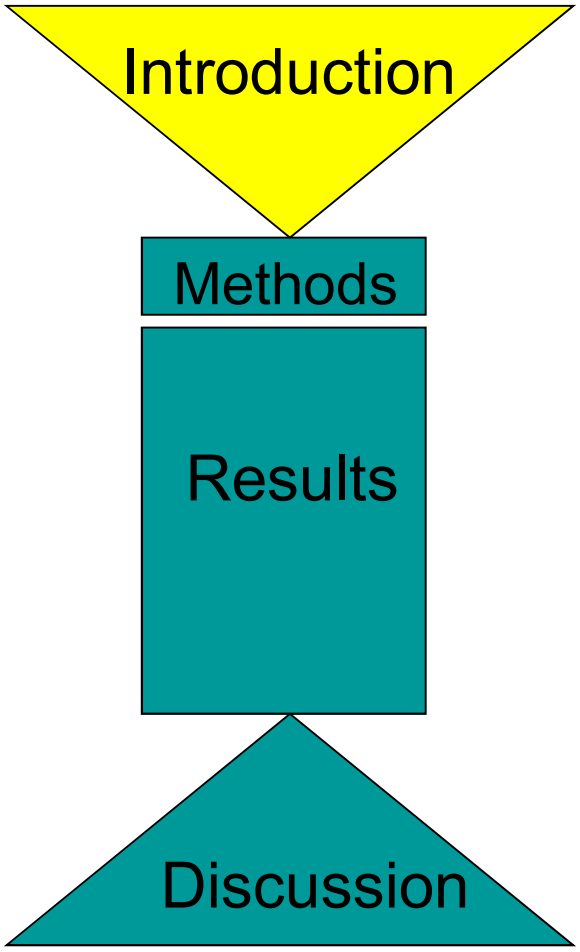
How to write the introduction

Lecture Outline

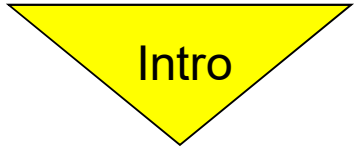
1. Function of Introduction
2. Length
3. Parts
4. Examples

Introduction Function



Motivate the reader!

In hopes they will read the entire paper THROUGH the discussion



Function

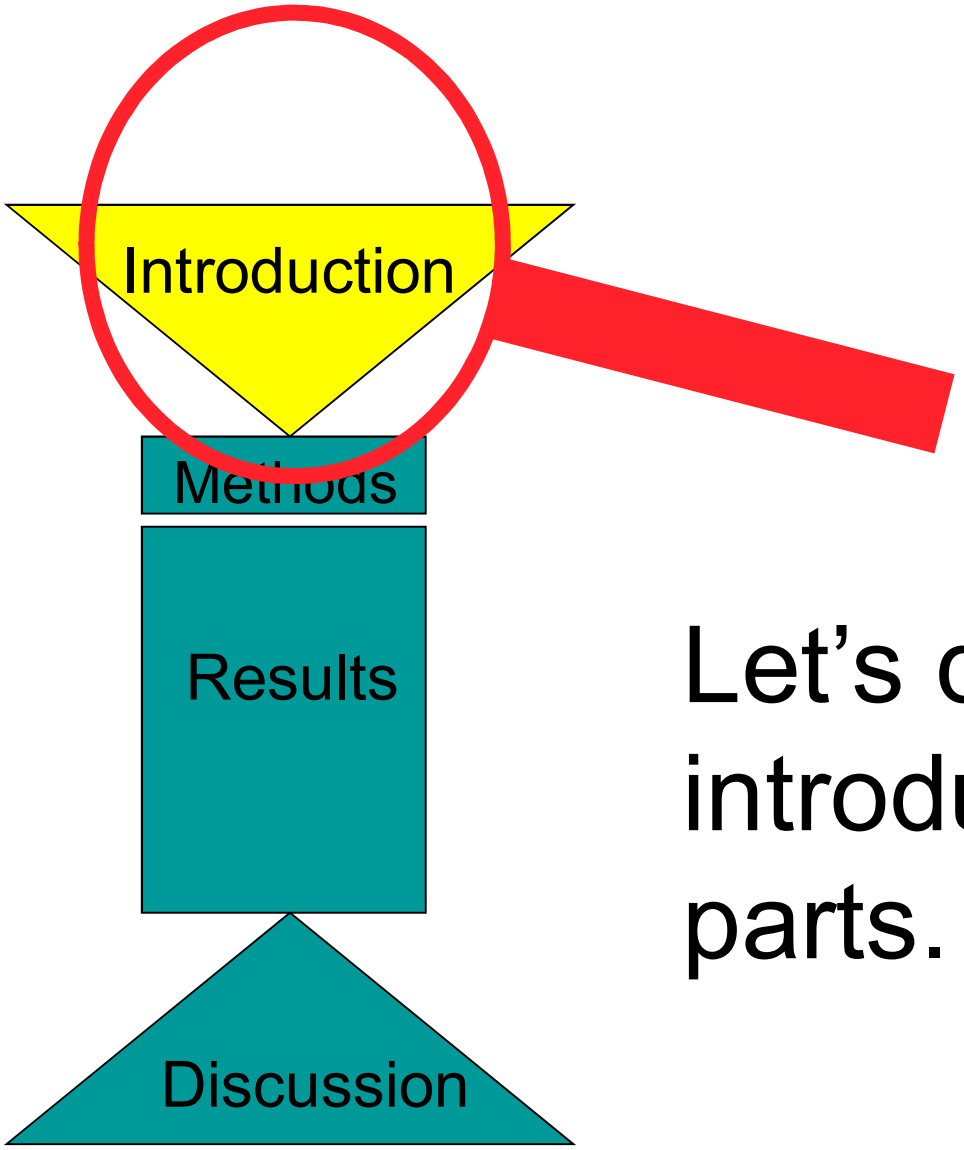
- Why did you do this study?
- How does it compare to what is currently accepted?
- How are you going to do the study?
- Short summary of what you found
  = your main point

Why did you do this study?

- **Are you testing a hypothesis**?
  - Do people who have had hepatitis B virus have a higher incidence of hepatitis C virus compared with people who have not had a HBV infection?
- **Are you improving a method?**
  - Faster, cheaper, more sensitive
- **Are you performing a descriptive study?**
  - Characterizing the distribution of dengue viral infection by geographic region

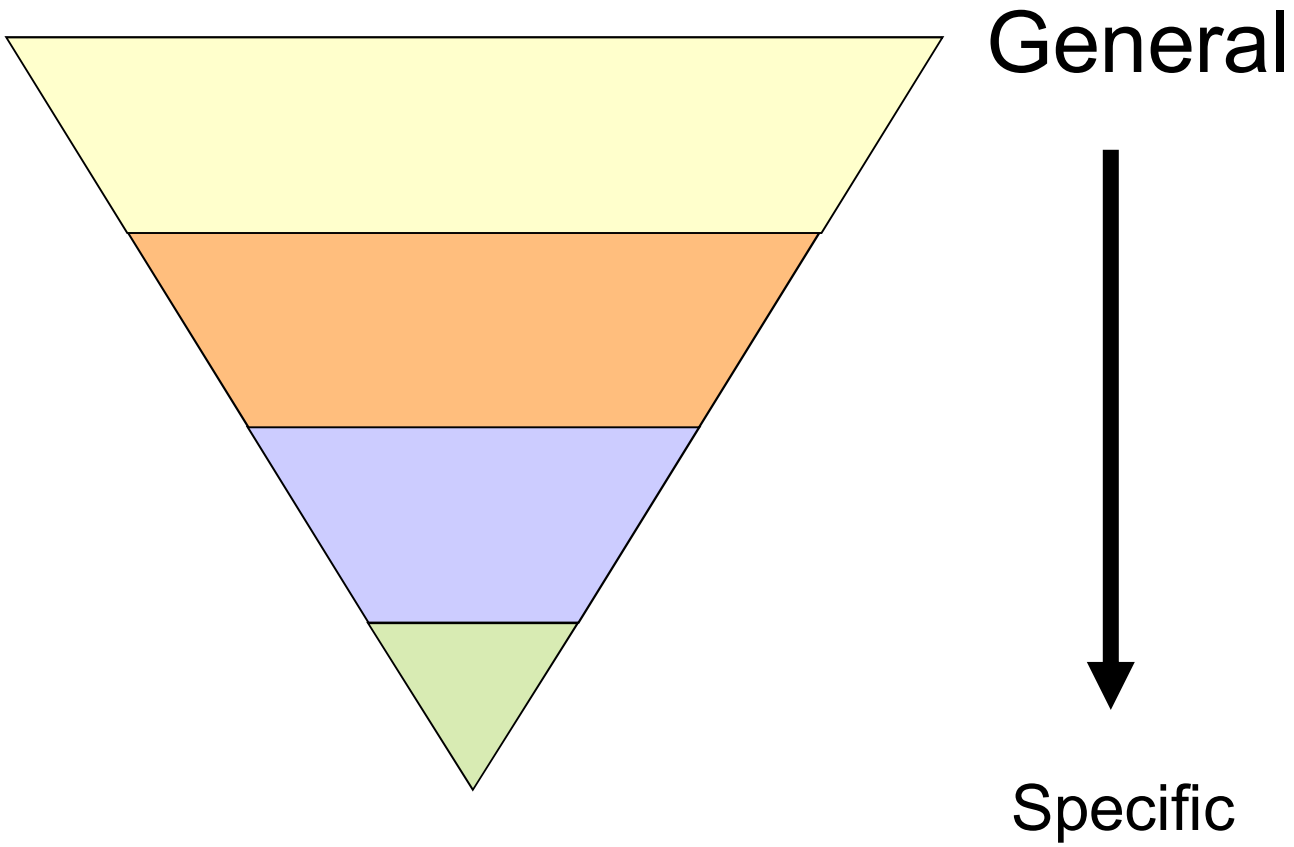
Length

- Keep it BRIEF
- See your target journal for average length of introduction
- Try to limit the introduction to 3 - 5 paragraphs

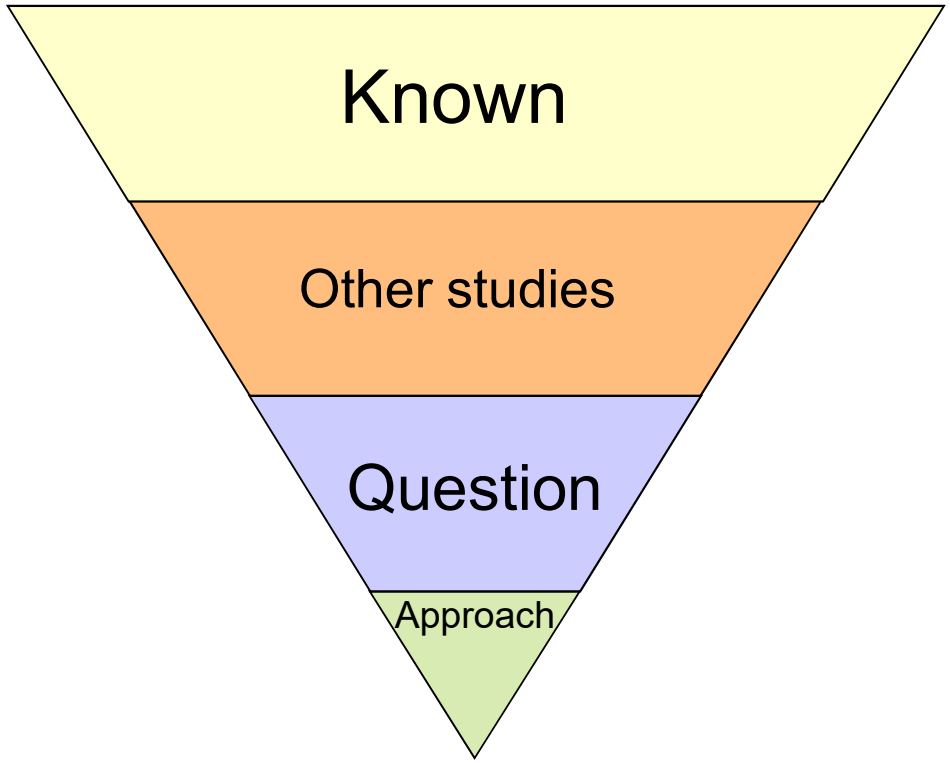


Let’s dissect the introduction into parts.

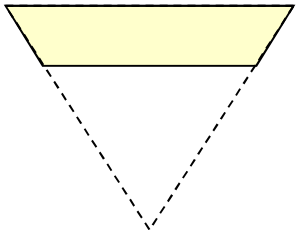
Flow of Introduction



Flow of Introduction

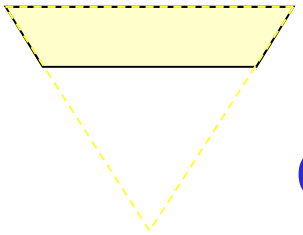


Structure your paragraphs



First paragraph

1. Very broad and general
2. Orients reader to importance of topic



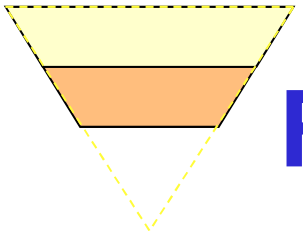
First sentence is broad and describes importance of topic

EXAMPLES

- "*Mycobacterium tuberculosis* is the causative organism of tuberculosis (TB) and **produces 8 million new cases of TB annually**."

- Since 2015, the Brazilian population has been living with the social repercussions of the Zika virus (ZIKV) epidemic, which have raised a debate about: **diagnostic difficulties; access to care for children with congenital ZIKV syndrome** (ZCS)

- "Dengue fever and its more severe form, dengue hemorrhagic fever/dengue shock syndrome, are considered **among the most important and widespread reemerging infectious diseases in developing countries**."

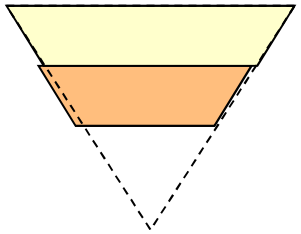


Relationship to other studies

1. Summarize previous knowledge

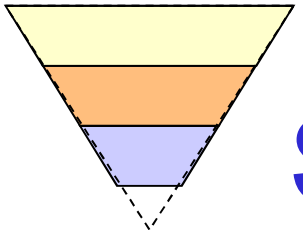
2. Prepare the scene for your work
   - Reveal gaps and holes
   - Raise a question

This should be the longest part of the introduction



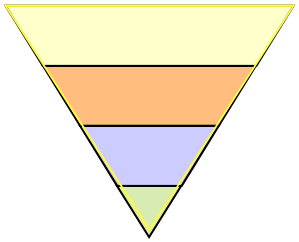
Cite relevant studies ONLY!

- Make sure you have done your literature review.
- DO NOT summarize your entire field!
- However DO reference studies that helped you come up with YOUR question.



State your question

- What specific hypothesis are you testing?
- What exact process are you describing?
- What method are you trying to improve?



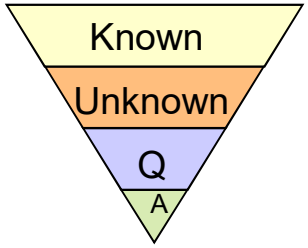
How did you do study?

BRIEFLY say this in 1 or 2 sentences.

Examples:

"In this study, we characterized *M. tuberculosis* genotypes in Delhi using DNA sequencing."

-"We assessed the prevalence of obesity in adolescents living in South Africa using clinical evaluations and questionnaires given to 450 high school students."



Introduction
Hypothesis Paper Model

Known: HCV is very important.

Unknown: HCV is not well characterized for people co-infected with HIV;

Question: therefore in this current study, we have characterized new HCV infections in 203 patients with HIV.

Approach: To do this, we have measured antibody and T cell responses to HCV antigens by ELISA and ELISPOT.

Last paragraph of introduction

- Most important paragraph of the introduction
- Many readers will only read this paragraph of your introduction
- Include your main finding
- The text in this paragraph is similar to text in the abstract and the beginning of the discussion

A Good Introduction should:

- go from general to specific
- summarize relevant publications
- be kept short for the reader

Most important is to motivate the reader to continue reading the entire paper!

Introduction (example) Zika epidemic and microcephaly in Brazil: Challenges for access to health care and promotion in three epidemic areas

Since 2015, the Brazilian population has been living with the social repercussions of the Zika virus (ZIKV) epidemic, which have raised a debate about: diagnostic difficulties; access to care for children with congenital ZIKV syndrome (ZCS); the search for financial compensation by the affected families; social and gender inequalities; a discussion on reproductive rights, among others [1].

Once considered a 'benign' disease—with no major clinical consequences, except for some symptoms such as rashes and oedema–the Zika virus infection became a public health problem after its relationship with microcephaly cases [2,3,4], Guillain-Barré Syndrome and encephalitis had been confirmed [5].

The first suspected cases of Zika were reported in October 2014 in the Brazilian State of Rio Grande do Norte as an outbreak of a rash of unknown origin [6]. In 2015 and 2016 Zika had spread throughout most of the country, with outbreaks in almost every major city of the Northeast. In these regions certain states gained prominence, and the cities with greater resources, but not organized in a network well adapted for the additional demand, became places of confluence of families seeking specialized healthcare and rehabilitation for children born with microcephaly and other diseases related to Zika.

Between January and November 2016, World Health Organisation (WHO) declared a situation of Public Health Emergency of International Concern (PHEIC) due to the rapid spread of the disease and its health and social repercussions, especially the cases of microcephaly.
The Brazilian Primary Health Care (BPH) network had been expanding the coverage of access to health services throughout the country until 2017 [1], mainly through the Basic Health Units (BHU) and the Family Health Strategy (FHS), which together constitute the main gateways to the Unified Health System (UHS). The actions of multidisciplinary family health teams facilitated access to the network and enabled the implementation of health surveillance measures and actions, such as early detection of suspected cases of diseases such as dengue, chikungunya and Zika, the main urban arboviruses in the country, in addition to carrying out actions on maternal and child health in the assigned territories.
In Brazil, since October 2015, microcephaly attributed to ZIKV infections has been reported in obstetric ultrasound examinations, so prenatal care is essential to prevent complications from exanthematic diseases for mother and baby [8]. Ensuring access to care by a gynaecologist and/or obstetrician trained to identify ZCS-related conditions is paramount for timely diagnosis of the disease and follow-up in suspected cases during pregnancy.

The use of diagnostic support equipment, such as ultrasound, is fundamental for the correct diagnosis of foetal changes, such as those caused by the ZIKV in pregnant women infected before or during pregnancy. WHO recommends three examinations during pregnancy, one in the first trimester (between 11 and 14 weeks), another in the second semester (between the 20th and 24th week), and in the last trimester (between the 32nd and 36th week). However, each pregnancy has its own peculiarities, and it is up to the gynaecologist-obstetrician to determine if there is a need for further examinations. There is scientific evidence that ultrasound examination before the 24th week of pregnancy increases the chances of detecting foetal malformations [9].

Given this situation, two main challenges are posed for the health system: 1—the **need to identify, receive, monitor and offer comprehensive treatment to children born during the Zika epidemics** and who have neurodevelopmental disorders, whether or not accompanied by other neurological malformation in addition to microcephaly; 2—maintain vigilance over the entire health care and surveillance network to detect early infections of pregnant women by ZIKV and possible malformations and changes in neurodevelopment in new-borns in the coming years, to help forecast the possible return the virus' circulation in the country.

This article aims to analyze access to specialized services necessary for the integral care of children born with ZCS in the states of Rio Grande do Norte, Paraiba and Bahia in the Northeast region of Brazil most affected by the epidemic.