A Lesson from COVID 19 in the Importance of Sex Disaggregated Data:

Sex/Gender differences in SARS-CoV-2 infection and mortality rates

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SEX AND GENDER HEALTH EDUCATION SUMMIT

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Disclosures

None

Background

- Sex and gender have important influences on disease prevalence, pathophysiology, clinical presentation, treatment and prognosis.

- It is essential to collect sex-disaggregated data to understand susceptibility to disease and health outcomes.

- Preliminary data from the 2020 COVID-19 pandemic caused by the coronavirus SARS CoV-2 suggest that women with COVID-19 have **significantly** lower mortality rates compared to men globally.

- The objective of this study is to evaluate sex differences in SARS-CoV-2 infection rates and mortality at a country level

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Methods

- Data source: Global Health 5050 website
  - Housed University College London
  - Collects government reported national surveillance data for COVID-19
  - https://globalhealth5050.org/covid19
  - These data lag behind figures for infections & deaths because only sex disaggregated data are collected

- Analysis of country data to determine the proportion of men and women with COVID-19 infection and associated deaths.

- Inclusion: Data from countries with completely sex disaggregated data

- Exclusion: Data from countries with incomplete sex disaggregation of data and from countries with no sex disaggregation of data

Global Health 5050 data tracker
https://globalhealth5050.org/covid19
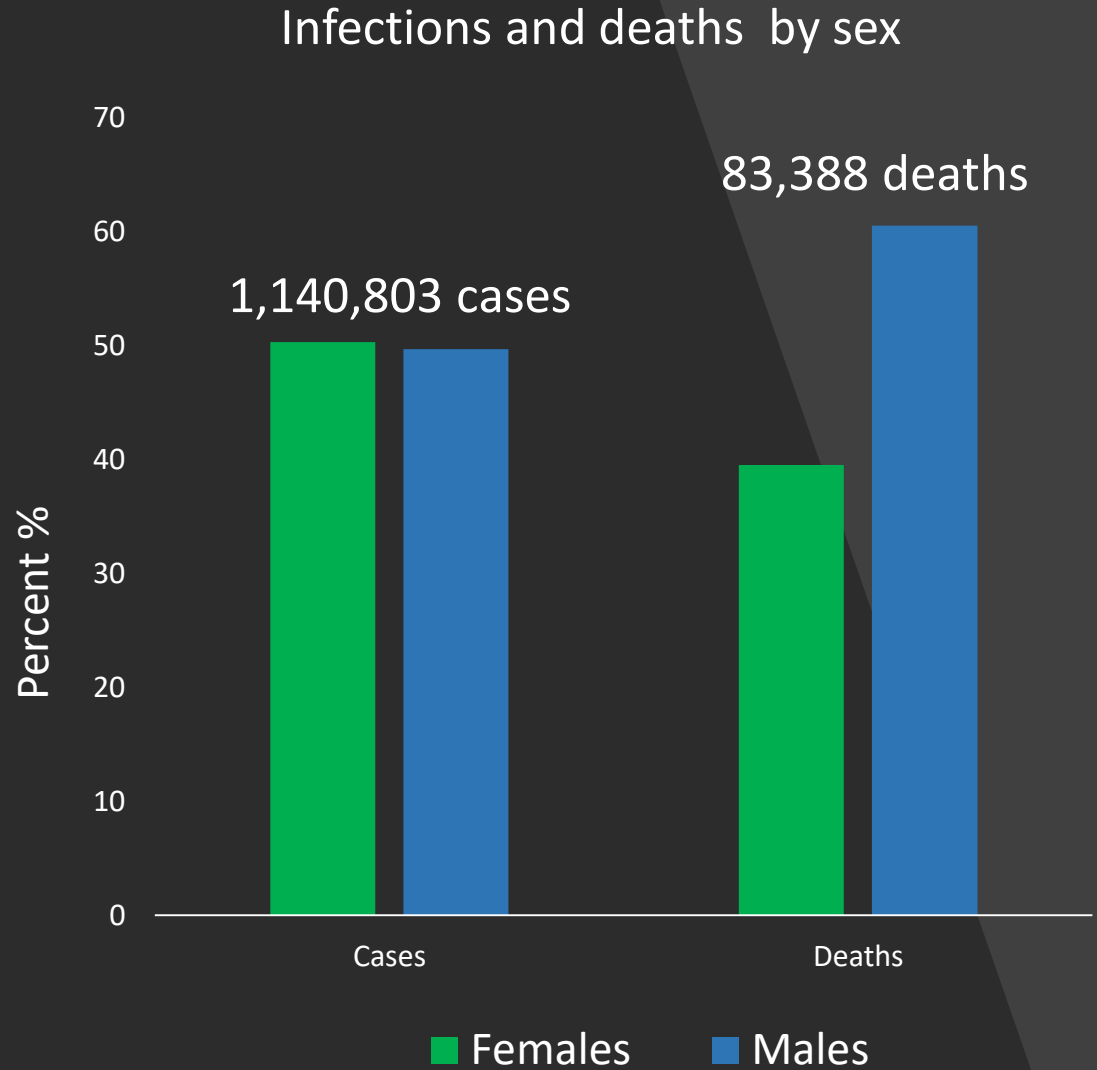accessed May 8, 2020

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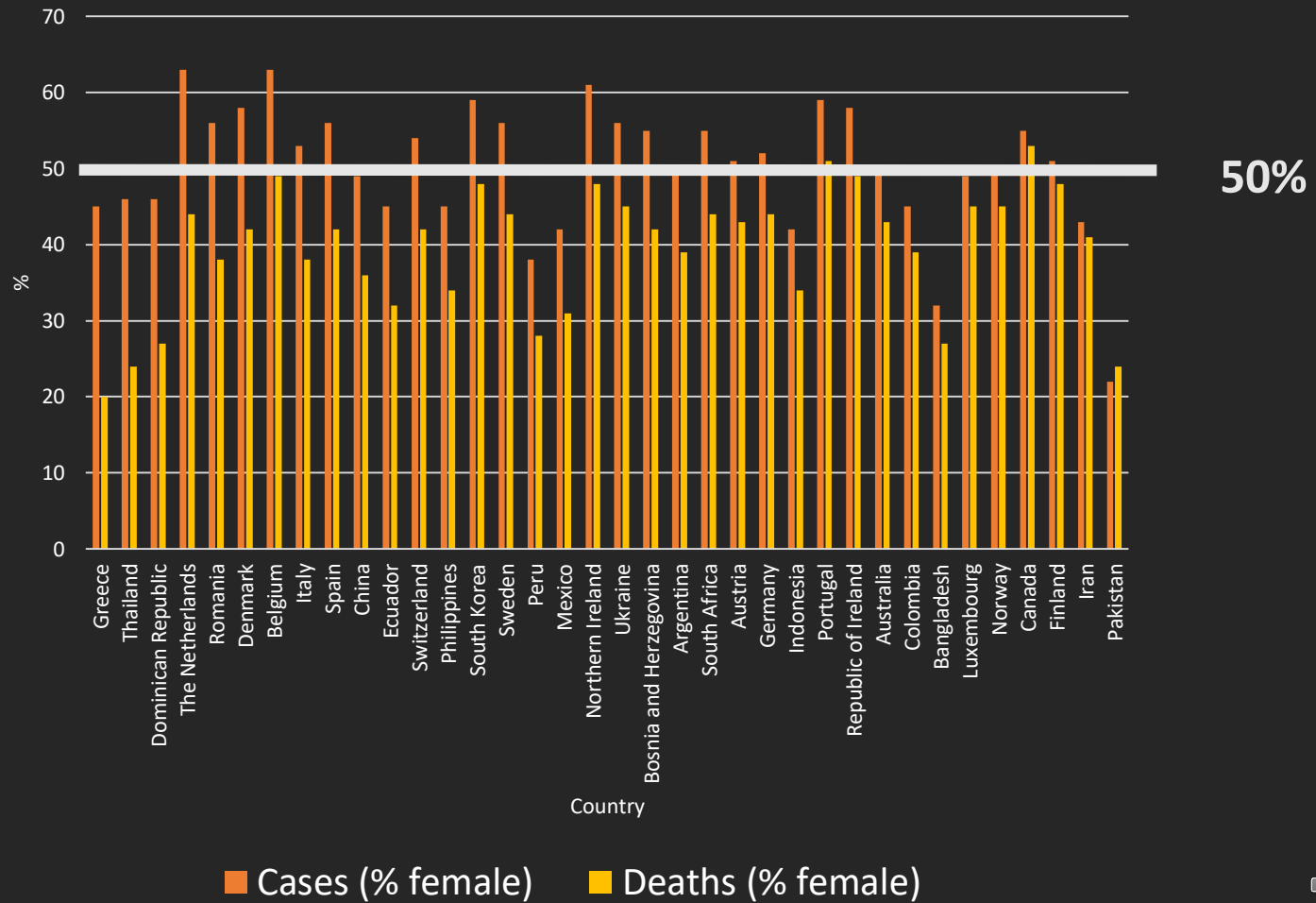# Snapshot of Global Health 5050 database May 8, 2020

- 3,044,513 cases of COVID-19 and 181,742 deaths in 78 countries

- Sex disaggregated data
  - ❑ Complete disaggregation in 36 countries
  - ❑ Partial disaggregation in 26 countries
  - ❑ No disaggregation in 16 countries

Countries reporting any cases COVID-19
Countries not reporting cases COVID-19

Global Health 5050 data tracker https://globalhealth5050.org/covid19 accessed May 8 , 2020

Cases and deaths in 36 countries

Infections and deaths by sex

83,388 deaths

1,140,803 cases

Percent %

- Females
- Males

Cases | Deaths

COVID-19: Cases and mortality in women, 36 countries

Global Health 5050 data tracker https://globalhealth5050.org/covid19 accessed May 8 , 2020

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COVID 19: Sex disaggregated cases and deaths May and August 2020

	Date	No countries	Total	% Women (range)	% Men (range)	Male to Female ratio
Cases	5/8/2020	36	1,140,803	50.3 % (22-63)	49.7%	--------
Deaths	5/8/2020	36	83,388	-----	------	1.62 (0.9-3.2)
Cases	8/7/2020	72	8,163,457	46.6% (15-53)	53.4% (39-85)	-------
Deaths	8/7/2020	72	394,288	-----	------	1.43 (0.5-2.5)

Global Health 5050 data tracker https://globalhealth5050.org/covid19 accessed August 12, 2020

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USA deaths (per 100,000) by age and sex
Data July 29, 2020
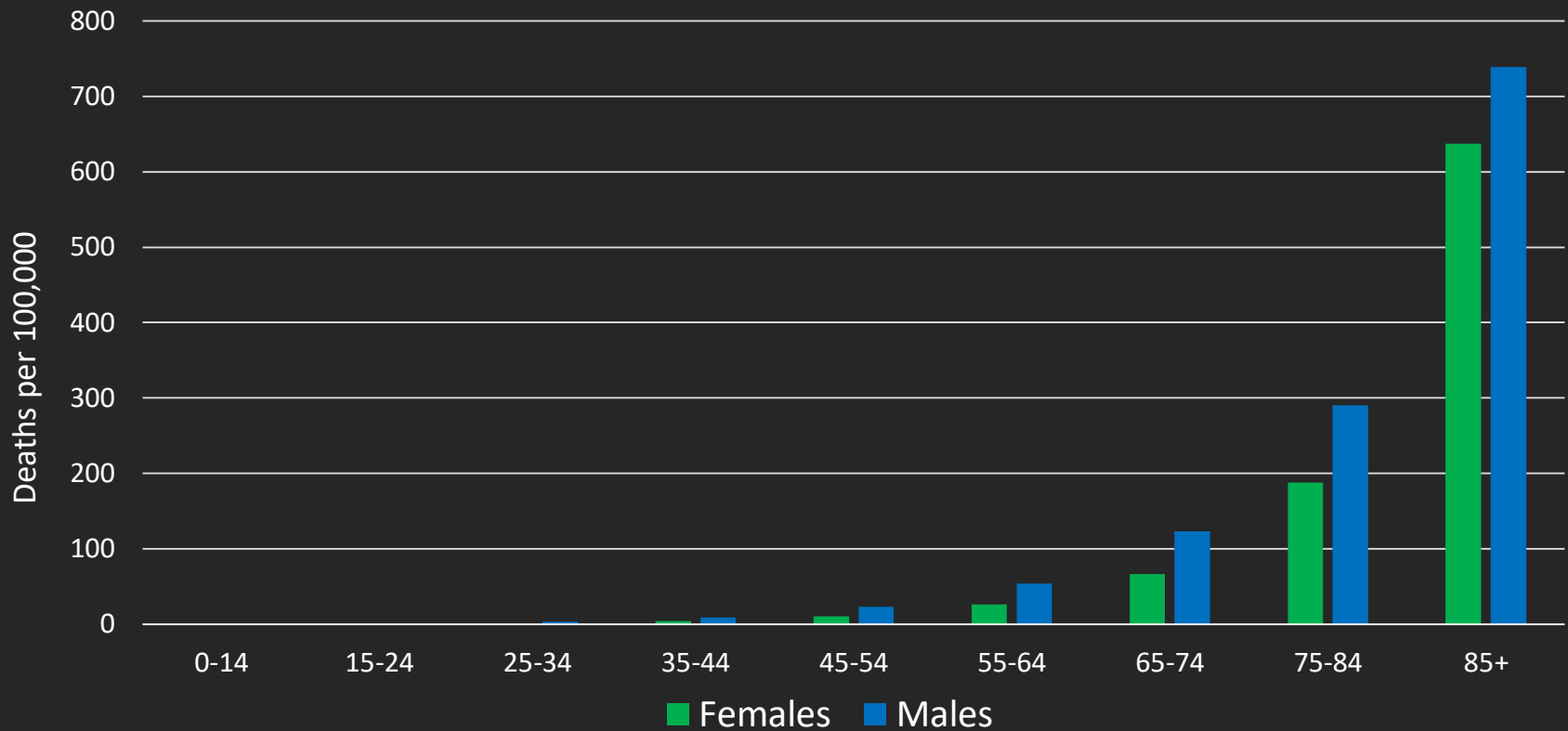
Global Health 5050 data tracker https://globalhealth5050.org/covid19 accessed August 12, 2020

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Discussion

- Sex difference in mortality, with higher deaths in men

- Possible explanations
  - Sex (biologically based) differences in the immune system
  - Gender differences in environmental exposures, access to health care, desire to seek health care
  - Sex/gender differences in co-morbid conditions

Countries reporting any cases COVID-19
Countries not reporting cases COVID-19
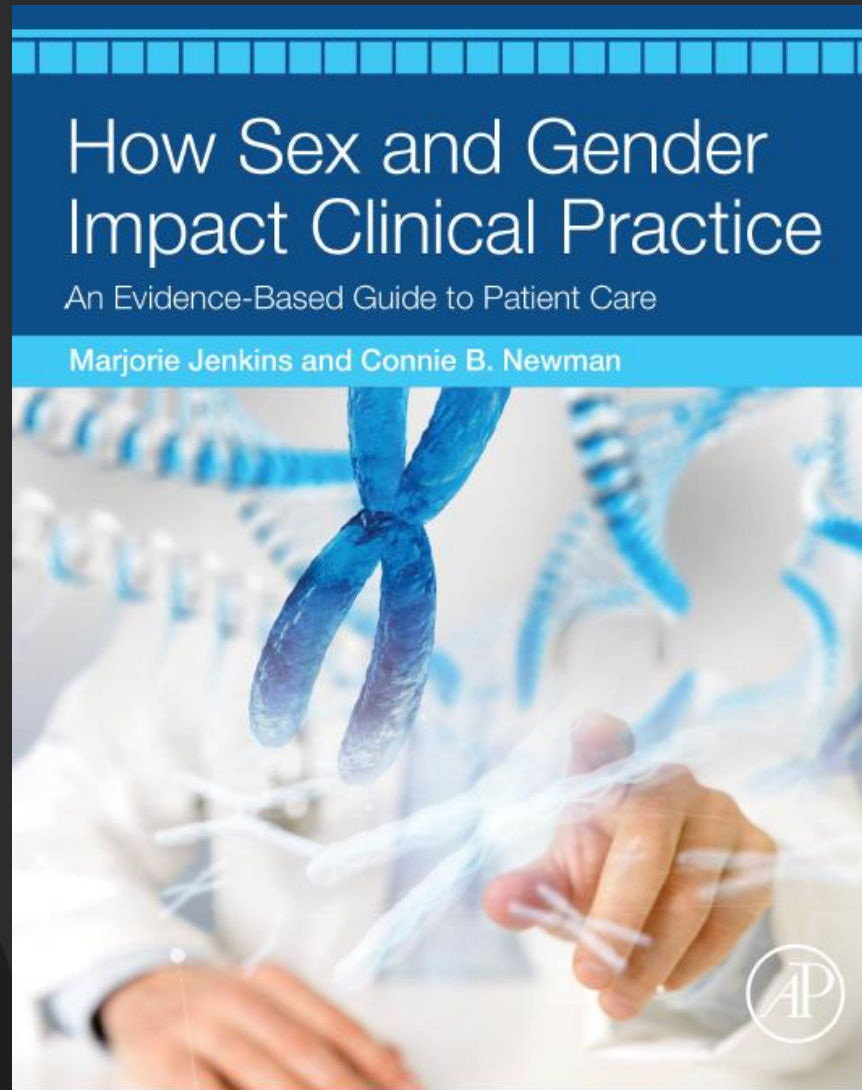
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Conclusions

- Higher mortality rates in men with COVID-19, despite equivalent infection rates by sex are suggested by preliminary country data

- The mechanisms of this difference in mortality may be related to sex (biological differences), comorbidities or gender related factors

- These data highlight the importance of disaggregating data by sex and gender
    - To understand disease susceptibility, prevalence and outcomes
    - To develop safe and effective treatments and preventive measures (vaccines) in men and women

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New Medical Textbook Published by Elsevier in September 2020

Thank you.

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