وزارة الصحة
المملكة الأردنية الهاشمية

Mortality Data in Jordan 2019 – 2022

Mortality Department - NCD Directorate - MOH

Foreword

I am incredibly pleased to present the Jordan Mortality Registry report for the year (2019-2022), which includes epidemiological mortality data and its distribution by age group, sex, and cause of death.

These data are of critical importance for policy makers, public health workers and researchers to identify the burden of disease based on the international classification of disease, and accordingly setting the priorities for national prevention strategies, health promotion activities and disease screening programs.

The report shows that non-communicable diseases, mainly cardiovascular diseases, cancer, diabetes, are the leading causes of death in Jordan and resulting in significant preventable premature deaths, which emphasize the importance of investing more in disease prevention and health promotion. In addition to that the burden of communicable diseases and injuries are still significant an require every effort to prevent them.

We would like to thank all contributors from Ministry of Health and other sectors in producing this report, and we are committed in investing more in Jordan mortality registry to improve data accuracy and timeliness.

Minister of Health, Jordan

Dr. Ibrahim Bdour

Acknowledgment

The Non-Communicable Diseases Directorate (NCDD)/General Mortality and Morbidity Department extends its sincere appreciation to all individuals and institutions whose invaluable efforts made the preparation of this report possible. Special thanks are extended to the leadership team for their strategic direction and expert guidance, which were pivotal in shaping and refining this document.

We express our deep gratitude to the dedicated departmental teams within the NCDD for their contributions to data analysis, coding, and report compilation. We also acknowledge the crucial support of our hospital partners, forensic medicine experts, and IT professionals, whose efforts in system maintenance and technical implementation significantly facilitated the report's completion.

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Mohamed Al-Wahsh	IT department: Electronic system monitoring
Focal Points	All Hospitals in Jordan: reporting

ملخص اللغة العربية

بيانات الوفيات في الاردن 2019 – 2022

هذا هو تقرير الوفيات في الأردن للأعوام 2019-2022 حيث أصدر اول تقرير عن اسباب الوفيات في الاردن منذ العام 2004 وتم نشر هذه النشرة من خلال وزارة الصحة - مديرية الامراض غير السارية - قسم السجلات الوطنية للوفيات والامراض - شعبة الوفيات.

يتضمن هذا التقرير معلومات عن توزيع حالات الوفيات حسب الفئات العمرية والجنس وحسب المجاميع المرضية للتصنيف العالمي للأمراض-ICD10.

آلية العمل: يتم ارسال نسخة من نموذج تبليغ الوفيات من المستشفيات ومراكز الطب الشرعي الى وزارة الصحة – قسم الوفيات والمراضة العام من خلال ضابط الارتباط في المستشفى حيث يتم حفظ ومراجعة وترميز أسباب الوفيات من خلال كادر متخصص مدرب على الترميز العالمي للأمراض وللوفيات ثم يتم ادخال البيانات من خلال برنامج الكتروني محوسب ويتم تحليل وإصدار

التقرير السنوي لأسباب الوفيات في الأردن للأعوام من 2019 -2022

تم استلام الالاف من النماذج وتمت مراجعة النماذج وترميزها حسب التصنيف العالمي للأمراض ومقارنتها مع عدد حالات الوفيات المسجلة للأردنيين في دائرة الاحوال المدنية.

وفي الجدول التالي أهم المؤشرات الصادرة عن تلك التقارير.

2022	2021	2020	2019	أهم المؤشرات
30075	38505	32653	25493	اعداد الوفيات المبلغ عنها في الأحوال المدنية
13956	17073	17151	17851	اعداد الوفيات المبلغ عنها لوزارة الصحة
46%	44%	53%	70%	نسبة اكتمال البيانات
1.3	1.6	1.6	1.7	معدل الوفيات الخام لكل 1000 من السكان
5.52	7.45	6.76	4.41	معدل الوفيات المعاير لكل 1000 من السكان
8.3	9.2	9.8	4.6	معدل وفيات الأطفال دون سن الخامسة
7.7	8.7	9.1	3.5	معدل وفيات الرضع
0.6	0.5	0.7	1.1	معدل وفيات الاطفال
33	85.2	38.5	32.4	معدل وفيات الأمهات في سن الانجاب
28	29.8	30	32.4	معدل وفيات الأمهات في سن الانجاب بدون كوفيد-19
10%	38%	28%	10%	نسبة الوفيات من الامراض السارية
85%	60%	71%	85%	نسبة الوفيات من الامراض غير السارية
4%	2%	2%	4%	الأسباب الخارجية للوفاة
33%	29%	35%	43.0%	أمراض الجهاز الدوراني والوعائي
16%	13%	16%	18.3%	الأورام والسرطان
4%	2%	1%	4.5%	أمراض السكري ومضاعفاته
3%	3%	3%	3.4%	أمراض الجهاز التنفسي

Introduction

Effective public health strategies depend on understanding mortality indicators, which are vital for assessing population health and the efficacy of healthcare systems. In Jordan, mortality data from 2019 to 2022 offers insights into the evolving health landscape, influenced by factors such as the COVID-19 pandemic and ongoing public health initiatives. This report utilizes data from reliable sources, including the Birth and Mortality National Information System (BMNIS), the older deaths reporting system, the ICD-10, and Jordan's Maternal Mortality Surveillance System, to provide a comprehensive overview of mortality trends and data completeness.

The report aims to:

- Analyse the mortality data to identify trends and discrepancies.
- Evaluate the reliability and completeness of the data.
- Examine key mortality indicators, such as crude death rates, age-standardized death rates, life expectancy at birth, and specific rates like infant, child, and maternal mortality.
- Assess the impact of communicable and non-communicable diseases, along with injuries, on overall mortality.

Methodology

1. Data Collection

The data for this report was collected from two primary sources:

- Civil Status Department: This department records official death certificates and provides comprehensive data on the reported deaths.
- Ministry of Health (MOH)**:** The MOH records deaths reported through healthcare facilities and provides detailed data on causes of death (Death notifications)
- Maternal and Perinatal Mortality registries in MOH

2. Data Categorization and Coding

The collected data was coded using the International Classification of Diseases, Tenth Revision (ICD-10) by World Health Organization (WHO)

Provides us comprehensive resources and definitions related to mortality. ensuring consistency in categorizing causes of death. The data was then divided into three major groups this classification is used by the World Health Organization (WHO) and is detailed in their Global Health Estimates:
Group 1: Communicable, maternal, perinatal, and nutritional conditions.
Group 2: Non-communicable diseases.
Group 3: Injuries.

3. Analytical Approach

A descriptive analysis was performed to identify trends and patterns in mortality rates and causes of death over the four-year period. Comparisons were made between the different data sources (Civil Department and MOH) to ensure consistency and accuracy.

4. Analytical Tools

The analysis was conducted using Excel, SPSS (Statistical Package for the Social Sciences) and ANACOD3 tools from the World Health Organization (WHO). These tools facilitated detailed statistical analysis and coding of mortality data, ensuring precision and accuracy in the findings.

4.a. Data Completeness

Data completeness was assessed to understand the reliability of the reported data. This metric indicates the percentage of actual deaths that were recorded in the data systems, highlighting potential gaps or discrepancies in data collection.

4.b. Mortality Indicators

Key mortality indicators were analysed, including:

1. Under-five mortality rate: The number of deaths of children under five years of age per 1,000 live births.
2. Infant mortality rate: The number of deaths of infants under one year of age per 1,000 live births.
3. Child mortality rate: The number of deaths of children aged 1-5 years per 1,000 children in that age group.
4. Crude death rate: The number of deaths per 1,000 populations.

4.c. Life Expectancy

The life expectancy at birth was calculated for each year from 2019 to 2022, providing an overview of the general health and longevity of the population.

Results

Table (1) Mortality Indicators in Jordan in the Period (2019 – 2022)

Mortality indicators of Jordan	2019	2020	2021	2022
Civil Status Department Reported Deaths	25493	32653	38505	30075
MOH Reported Deaths	17851	17151	17073	13956
Completeness Of Data	70%	53%	44%	46%
Crude Death Rate (Per 1 000 Population) Both Sexes	1.7	1.6	1.6	1.3
Age-Standardized Rate (Per 1000 Population)	4.41	6.76	7.45	5.52
Life Expectancy at Birth (Years) Both Sexes	84	86	86	89
Under-Five Mortality Rate	4.6	9.8	9.2	8.3
Infant Mortality Rate	3.5	9.1	8.7	7.7
Child Mortality Rate	1.1	0.7	0.5	0.6
Maternal Mortality Rate	32.4	38.5	85.2	33
Non-COVID-19 Maternal Mortality Rate	32.4	30	29.8	28
Group 1 (Communicable, Maternal, Perinatal and Nutritional Conditions)	10%	28%	38%	10%
Group 2 (Non-Communicable Diseases)	85%	71%	60%	85%
Group 3 (Injuries)	4%	2%	2%	4%
Cardiovascular Diseases	43.0%	35%	29%	33%
Malignant Neoplasms	18.3%	16%	13%	16%
Diabetes Mellitus	4.5%	1%	2%	4%
Neuro-Psychiatric Conditions	1.8%	1%	1%	1%
Respiratory Diseases	3.4%	3%	3%	3%

Discussion

1. **Data Completeness and Reliability**

The significant drop in data completeness during the studied years (from 70% in 2019 to 44% in 2021) reflects the challenges in data collection and reporting during crises. Incomplete data can lead to underestimation or misclassification of causes of death, affecting public health planning and intervention strategies. The slight recovery in 2022 to 46% highlights the need for robust and resilient data systems that can withstand such shocks.

2. **Trends in Crude Death Rate**

The crude death rate remained relatively stable at 1.6 per 1,000 populations from 2019 to 2021 but saw a notable decrease to 1.3 in 2022. This decrease might suggest improvements in healthcare services, better disease management, or demographic changes such as a younger population.

3. **Trends in Life Expectancy**

The steady increase in life expectancy at birth, from 84 years in 2019 to 89 years in 2022, reflects improvements in healthcare, living conditions, and possibly the effectiveness of public health interventions.

4. **Causes of Death**

- Non-communicable diseases (NCD): particularly cardiovascular diseases and malignant neoplasms, remain the leading causes of death. However, the return to higher percentages in 2022 indicates that NCDs continue to be a significant public health challenge. This calls for sustained efforts in prevention, early detection, and management of these conditions.
- Communicable Diseases: The sharp increase in deaths due to COVID-19 pandemic.

- Injuries: The stable percentages of deaths due to injuries over the years indicate consistent rates of accidents and injuries. However, the low percentage suggests that injuries are not a major cause of mortality compared to NCDs and communicable diseases.

5. **Age standardized rate:**
    a) 2019 to 2021 Rise: The increase from 4.4 in 2019 to 7.4 in 2021 suggests significant factors influencing mortality rates. One prominent factor could be the COVID-19 pandemic, leading to higher mortality rates worldwide during those years. The peak in 2021 likely reflects the pandemic's severe impact.
    b) 2022 Decline: The rate dropping to 5.5 in 2022 indicates an improvement compared to 2020 and 2021. This reduction could be attributed to effective public health responses, vaccination drives, and better management of health crises, which might have reduced the number of deaths.
    c) General Trends: The fluctuation shows the health environment's dynamic nature, where external factors such as pandemics can cause significant deviations. Once these factors are controlled, the rates trend back towards their previous levels.

    Overall, the data reflects the substantial impact of the pandemic followed by recovery as interventions took effect.

Relationship Between the Rates

- Age-Specific Mortality Impact: The age-standardized death rate accounts for the age distribution of the population, highlighting the increased mortality among older age groups during the pandemic. This rate provides a clearer picture of the pandemic's impact on vulnerable populations.
- Population Growth Effect: The crude death rate's stability from 2019 to 2021, despite the pandemic, may be influenced by population growth. As the total population increases, the crude death rate can appear stable even if the absolute number of deaths rises.
- Recovery Trends: The simultaneous decline in both rates in 2022 suggests a return to pre-pandemic mortality patterns, with effective

public health interventions reducing the overall death toll. This alignment indicates that both general and age-specific mortality rates are moving towards stabilization.

Sex Differences

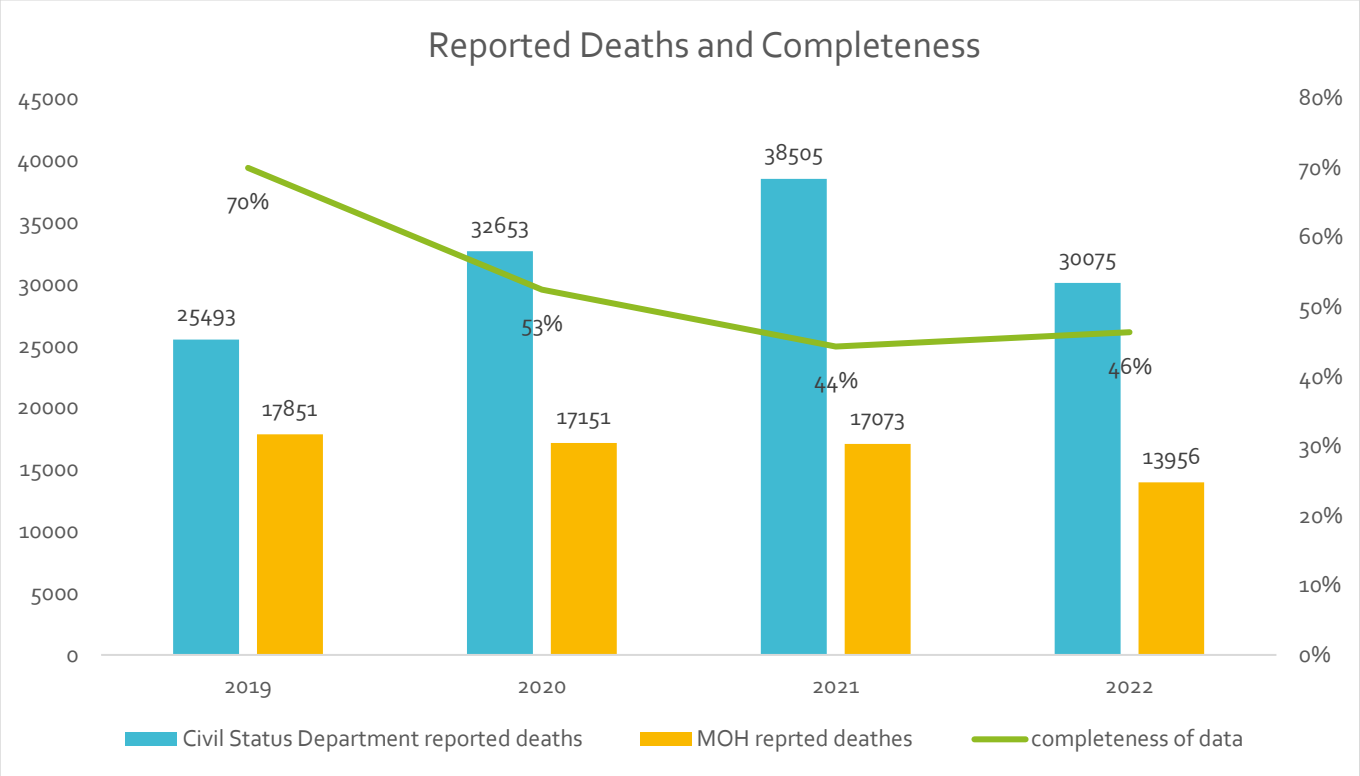
- Sex Distribution: Across all years, the sex distribution of deaths remains relatively balanced, with males slightly outnumbering females in total deaths.
- Age Group Mortality: The data suggests that male mortality rates are generally higher across most age groups, particularly in older age groups.

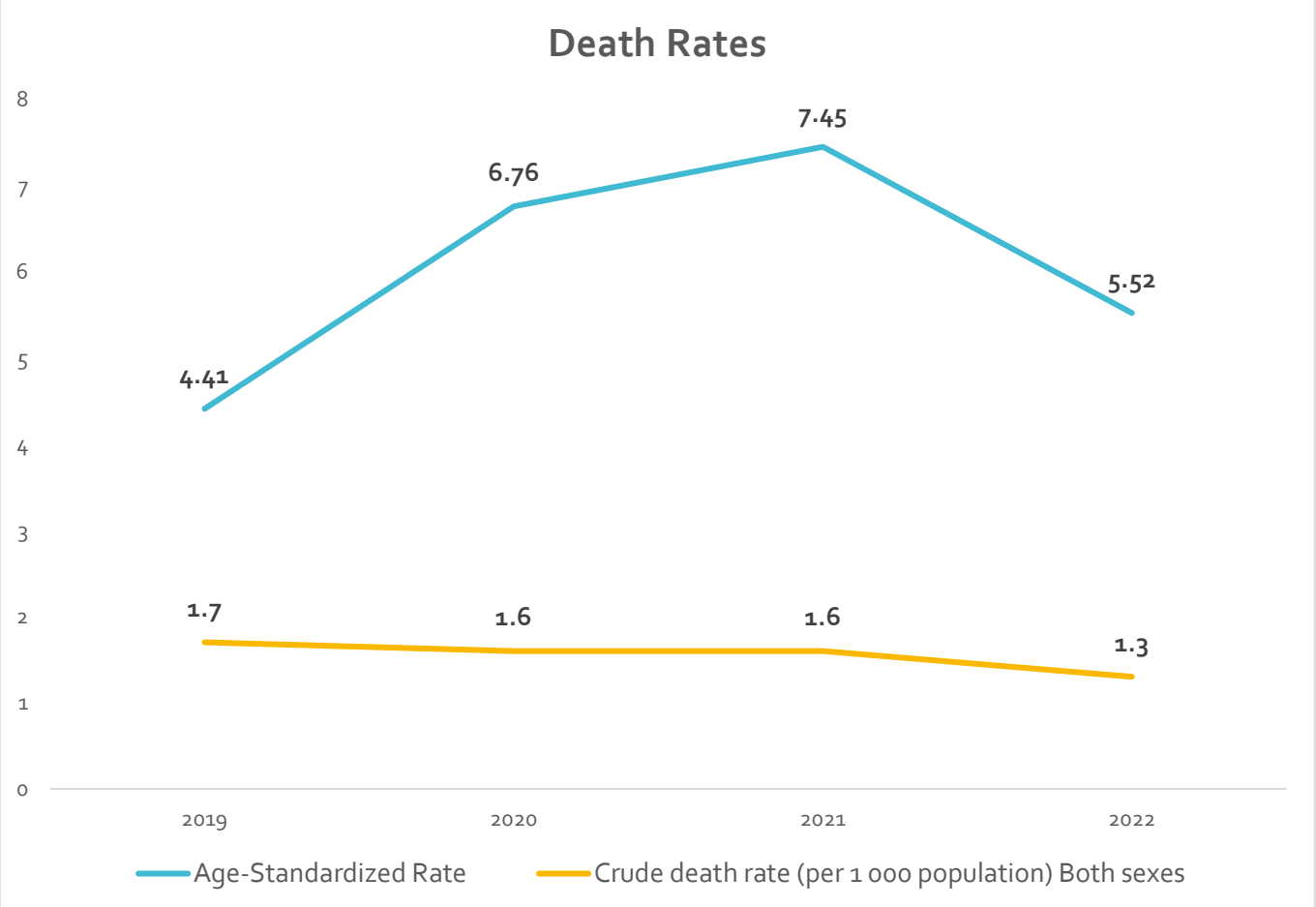
Key Recommendations

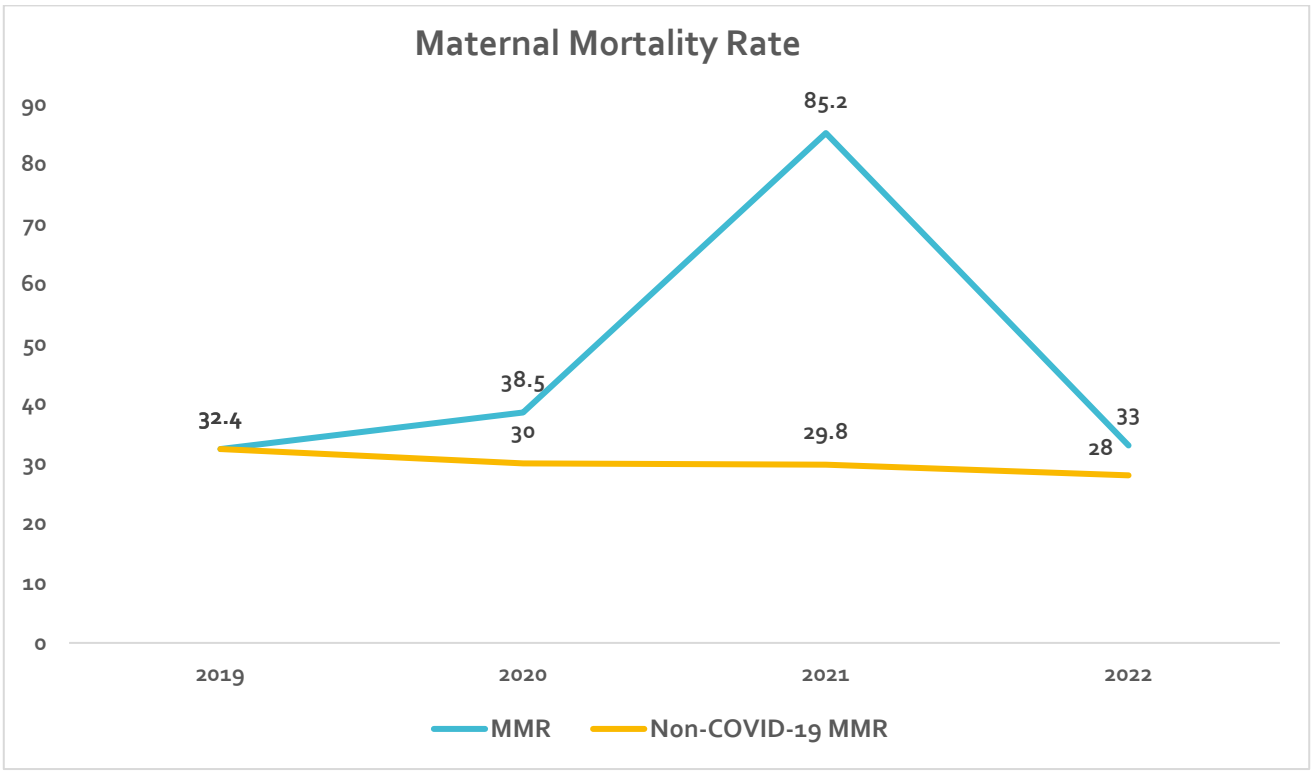
1. Improve data collection and reporting
2. Strengthen public health surveillance
3. Targeted health interventions for NCDs
4. Improve pandemic preparedness

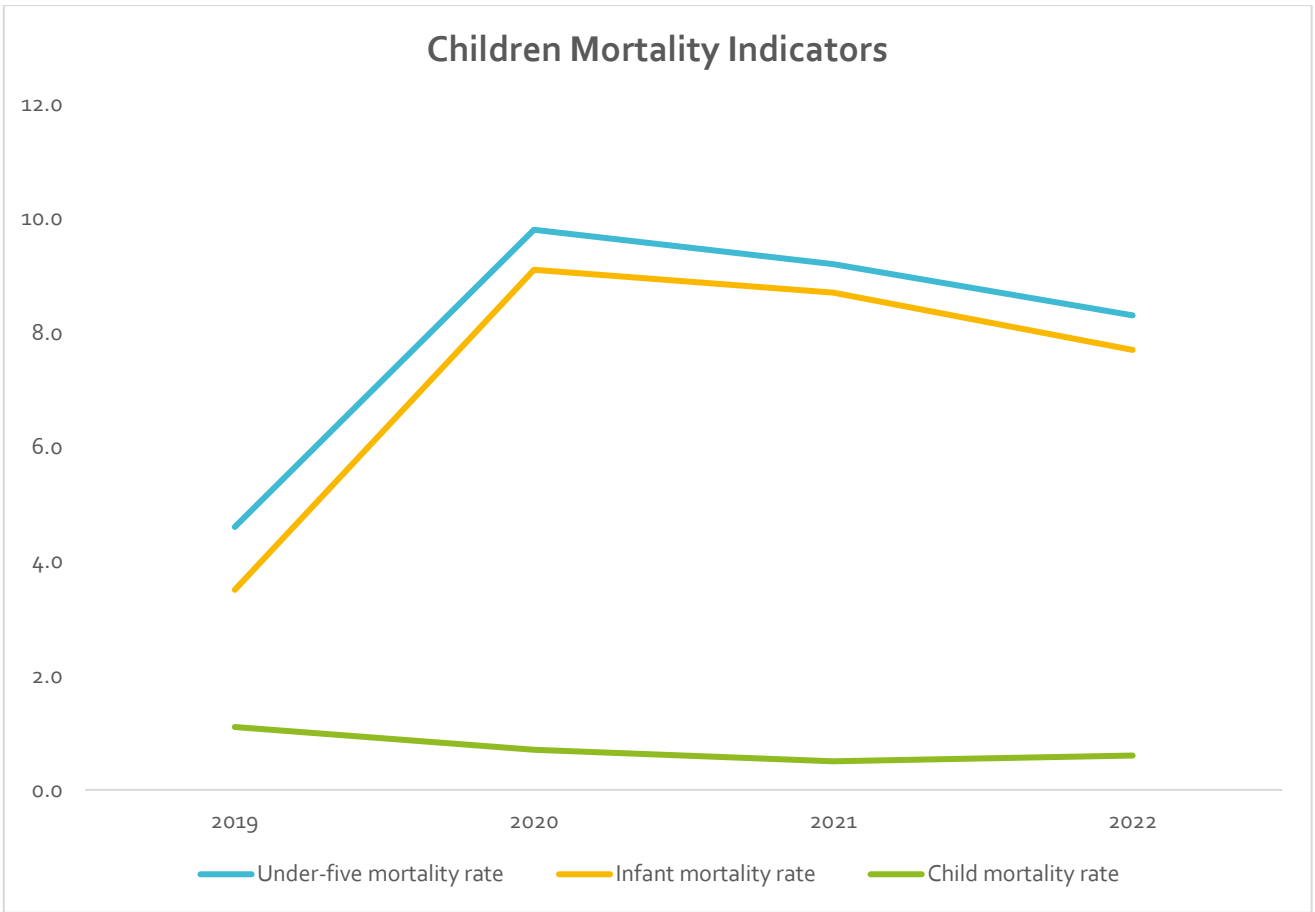
Table (3) Number and Percentage of Deaths in Jordan by Sex and Age Group

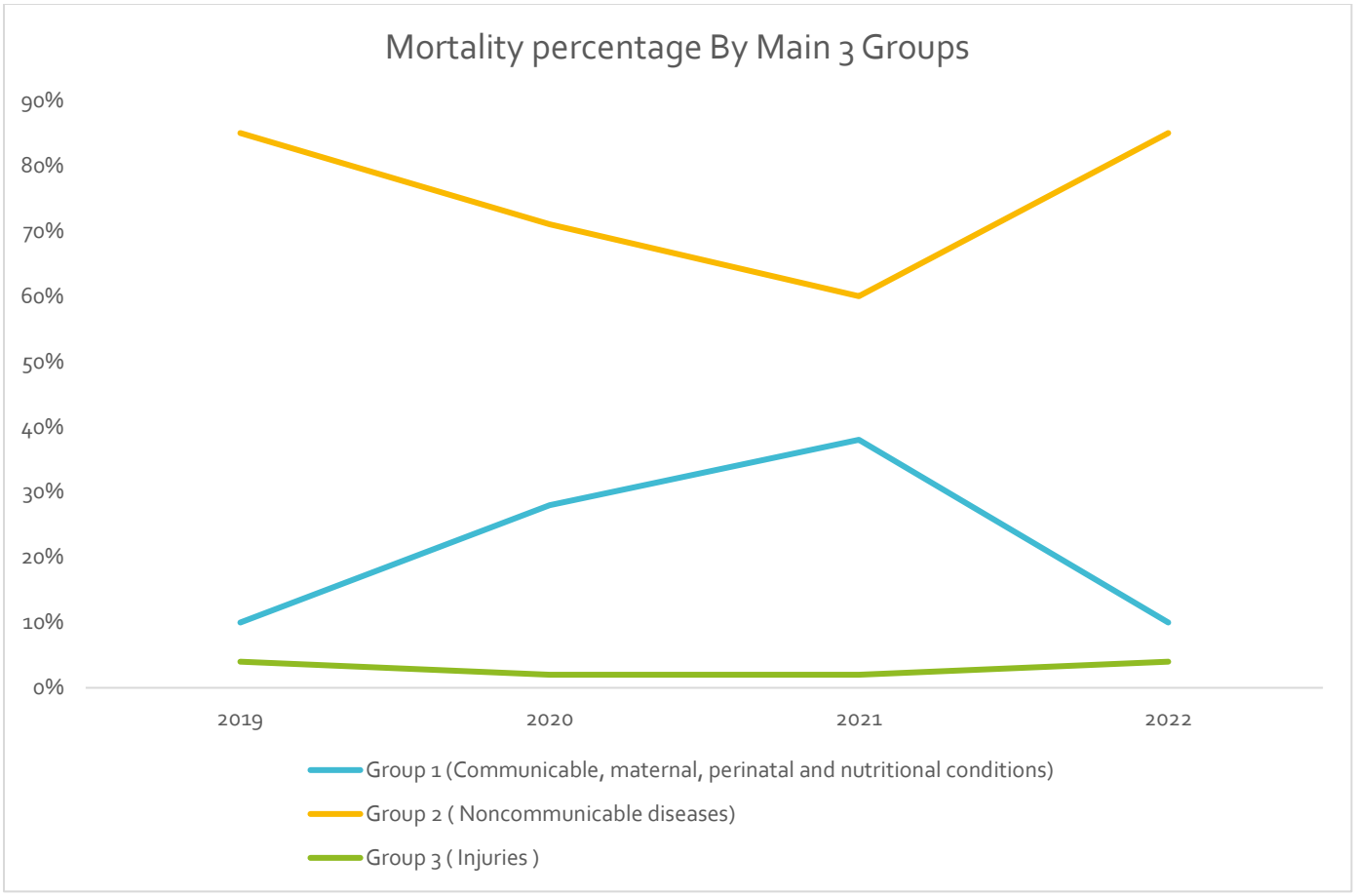
	2019				2020				2021				2022			
	Number of deaths		Percentage of total deaths		Number of deaths		Percentage of total deaths		Number of deaths		Percentage of total deaths		Number of deaths		Percentage of total deaths	
Age group	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<1	452	364	4.5	4.6	1221	951	12.5	12.9	1218	902	12.9	11.8	1058	850	13.9	13.4
1-4	128	138	1.3	1.8	103	81	1.1	1.1	82	53	0.9	0.7	76	74	1	1.2
4-9	95	79	0.9	1	55	41	0.6	0.6	55	48	0.6	0.6	59	37	0.8	0.6
10-14	76	53	0.8	0.7	46	52	0.5	0.7	59	39	0.6	0.5	33	41	0.4	0.6
15-19	122	79	1.2	1	73	43	0.7	0.6	77	47	0.8	0.6	63	50	0.8	0.8
20-24	142	90	1.4	1.1	102	67	1	0.9	70	52	0.7	0.7	72	28	0.9	0.4
25-29	176	107	1.8	1.4	110	72	1.1	1	86	90	0.9	1.2	56	48	0.7	0.8
30-34	191	123	1.9	1.6	131	92	1.3	1.2	122	93	1.3	1.2	91	87	1.2	1.4
35-39	200	148	2	1.9	154	106	1.6	1.4	152	125	1.6	1.6	120	89	1.6	1.4
40-44	345	183	3.4	2.3	217	133	2.2	1.8	226	163	2.4	2.1	148	144	1.9	2.3
45-49	478	261	4.8	3.3	371	208	3.8	2.8	337	237	3.6	3.1	246	196	3.2	3.1
50-54	697	385	7	4.9	532	312	5.4	4.2	522	359	5.5	4.7	421	259	5.5	4.1
55-59	789	466	7.9	6	756	446	7.7	6	740	462	7.8	6.1	583	367	7.7	5.8
60-64	892	568	8.9	7.3	879	528	9	7.2	751	532	7.9	7	708	389	9.3	6.1
65-69	927	659	9.3	8.4	890	595	9.1	8.1	862	649	9.1	8.5	669	502	8.8	7.9
70-74	1059	963	10.6	12.3	993	813	10.2	11	1006	839	10.6	11	696	622	9.2	9.8
75-79	1307	1034	13	13.2	1233	888	12.6	12	1168	999	12.3	13.1	902	792	11.9	12.5
80-84	986	968	9.8	12.4	983	942	10.1	12.8	992	919	10.5	12.1	812	773	10.7	12.2
85+	958	1163	9.6	14.9	928	1004	9.5	13.6	933	1007	9.9	13.2	783	1012	10.3	15.9

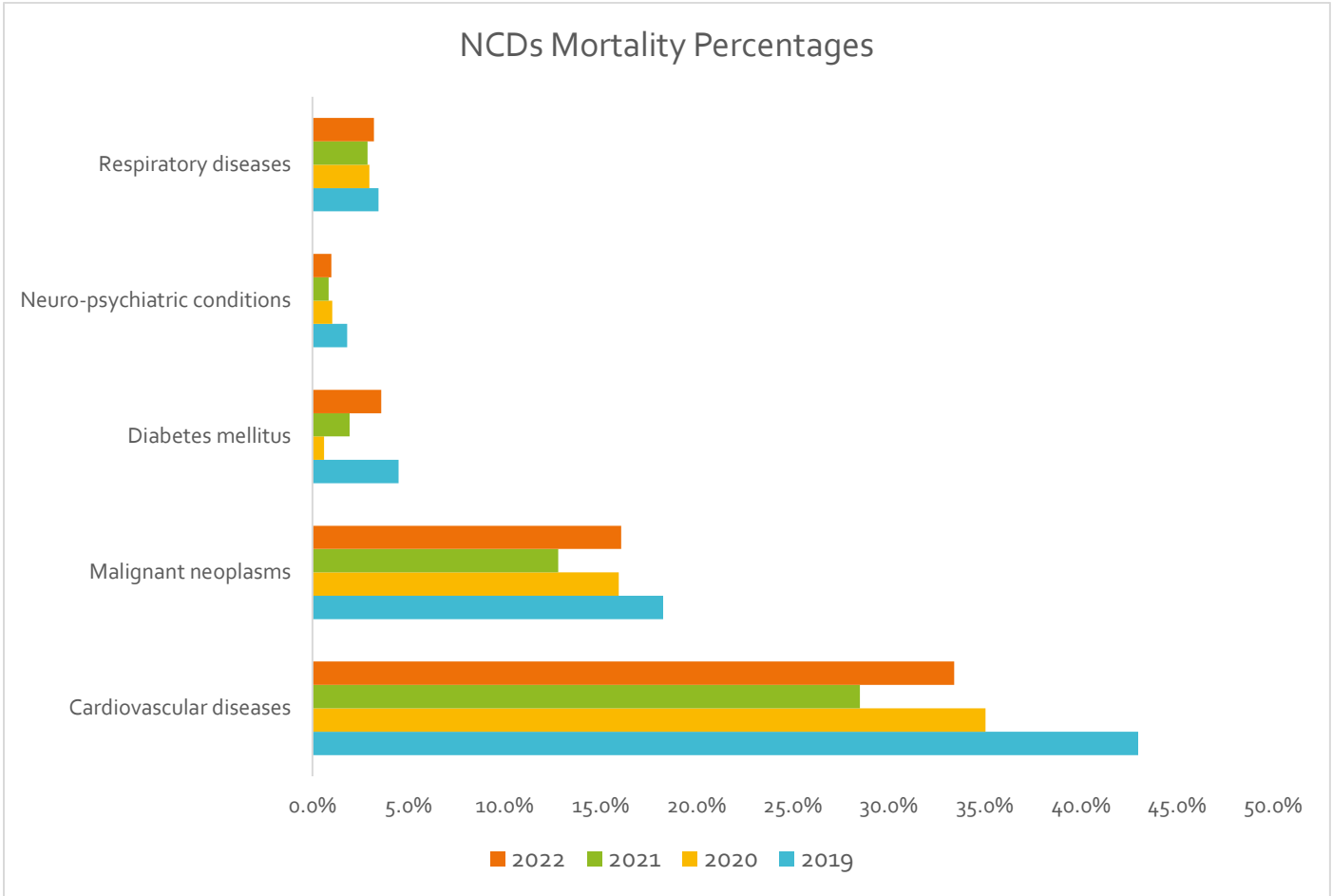

Reported Deaths and Completeness
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
80%
70%
60%
50%
40%
30%
20%
10%
0%
25493
17851
32653
17151
38505
17073
30075
13956
70%
53%
44%
46%
2019
2020
2021
2022
Civil Status Department reported deaths
MOH reprted deathes
completeness of data


Death Rates
8
7
6
5
4
3
2
1
0
4.41
6.76
7.45
5.52
1.7
1.6
1.6
1.3
2019
2020
2021
2022
Age-Standardized Rate
Crude death rate (per 1 000 population) Both sexes


Maternal Mortality Rate
90
80
70
60
50
40
30
20
10
0
32.4
38.5
85.2
30
29.8
33
28
2019
2020
2021
2022
MMR
Non-COVID-19 MMR


Children Mortality Indicators
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2019
2020
2021
2022
Under-five mortality rate
Infant mortality rate
Child mortality rate


Mortality percentage By Main 3 Groups
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2019
2020
2021
2022
Group 1 (Communicable, maternal, perinatal and nutritional conditions)
Group 2 (Noncommunicable diseases)
Group 3 (Injuries)


NCDs Mortality Percentages
Respiratory diseases
Neuro-psychiatric conditions
Diabetes mellitus
Malignant neoplasms
Cardiovascular diseases
0.0%
5.0%
10.0%
15.0%
20.0%
25.0%
30.0%
35.0%
40.0%
45.0%
50.0%
2022
2021
2020
2019