YEARS OF POTENTIAL LIFE LOST FROM SELECT CAUSES OF DEATH

CLARK COUNTY, OH 2010-2020

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OBJECTIVE:

The purpose of this report is to quantify the burden of common causes of death in Clark County, OH through calculating the years of potential life lost.

METHODS:

Comparing number of deaths in the YPLL shows how deaths occurring at a younger age impact a population. Public health interventions have the potential to prevent deaths amongst the younger population. The select causes of death used for comparison in this report are among the top fifteen causes of death in Clark County.

The YPLL is calculated as (80 years of age is used for COVID deaths):

$$YPLL = \sum(75 \text{ upper age limit} - X_{\text{decedent's age in years}})$$

The YPLL Rate is calculated as (< 80 years of age is used for COVID deaths:

$$YPLL \text{ Rate} = (YPLL / Population_{<75 \text{ Years of Age}}) * 1000$$

DEFINITION:

The Years of Potential Life Lost (YPLL) measures premature mortality, which is the sum of the years of life lost annually by persons who suffered early deaths. For common causes of death, premature death is defined as death occurring before age of 75 since the average age of death in Clark County is 74.2 years of age. For COVID-19 related deaths, premature death is death occurring before age of 80 due to the older population being more affected by COVID-19.

Drug poisonings and suicide tend to occur at a younger age compared to other causes of death. The average age at death in Clark County in 2020 for drug poisonings is 41.1 years, suicide is 46.4 years, and heart disease is 75.0 years. The YPLL rate represents the years of potential life lost per 1,000 population below the age of 75.

SOURCE:

Ohio Department of Health Vital Statistics, mortality files, 2010-2020

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TABLE: NUMBER OF DEATHS

Number of Deaths, Clark County, 2020

Cause of Death	2020	Average Age at Death (Years)
Heart Disease	429	75.0
Cancer	340	72.5
COVID-19	214	78.1
Stroke	151	80.5
CLRD	122	77.1
Diabetes Mellitus	84	73.4
Alzheimer's	77	87.8
Accidents	63	55.2
Drug Poisonings	56	41.1
Septicemia	35	71.4
Suicide	33	46.4
Influenza & Pneumonia	29	77.7

CLRD = Chronic Lower Respiratory Disease

- *Top 3 Deaths Counts*: Heart Disease, Cancer, COVID-19
- The average age at death is lowest for drug poisonings (*41.1 years*) and suicide (*46.4 years*)
- The average age at death is highest for Alzheimer's (*87.8 years*) and Stroke (*80.5 years*)

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TABLE: YPLL BY CAUSE OF DEATH

Years of Potential Life Lost, Clark County, 2020

Cause of Death	YPLL	Rate
Heart Disease	2,571 years	20.9
Cancer	2,035 years	16.5
Drug Poisonings	1,899 years	15.4
Accidents	1,500 years	12.2
COVID-19	1,261 years	9.9
Suicide	982 years	8.0
Diabetes Mellitus	516 years	4.2
Stroke	431 years	3.5
CLRD	385 years	3.1
Septicemia	276 years	2.2
Influenza & Pneumonia	151 years	1.2
Alzheimer's	25 years	0.2

CLRD = Chronic Lower Respiratory Disease

- ***Top 3 YPLL Rates:*** Heart Disease, Cancer, Drug Poisonings

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TABLE: YPLL RATE BY RACE

Years of Potential Life Lost, by Race, Clark County, 2020

Cause of Death	White	Rate	Black	Rate
Heart Disease	2346	22.2	223	21.4
Cancer	1793	17.0	231	22.2
Drug Poisonings	1644	15.6	255	24.5
Accidents	1148	10.9	249	23.9
COVID-19	953	8.8	218	20.3
Suicide	809	7.7	124	11.9
Diabetes Mellitus	417	3.9	99	9.5
CLRD	364	3.4	21	2.0
Stroke	356	3.4	75	7.2
Septicemia	223	2.1	53	5.1
Influenza & Pneumonia	146	1.4	5	0.5

CLRD = Chronic Lower Respiratory Disease

- The highest cause of premature death for white residents is **heart disease** compared to **drug poisonings** for Black residents
- For every 1,000 people under the age of 75 years, Black residents lose 23.9 years of potential life compared to white residents who lose 10.9 years of potential life due to **accidents**
- Black residents have a higher rate for a majority of causes of premature death. The greatest disparities can be seen from diabetes mellitus *(2.4x)*, septicemia *(2.4x)*, COVID-19 *(2.3x)*, accidents *(2.2x)*, and stroke *(2.1x)*

Due to low numbers: Alzheimer's was excluded from the racial breakdown
Due to low numbers: American Indian and Asian/Pacific Islander were excluded from the racial breakdown

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TABLE: YPLL RATE BY GENDER

Years of Potential Life Lost, by Gender, Clark County, 2020

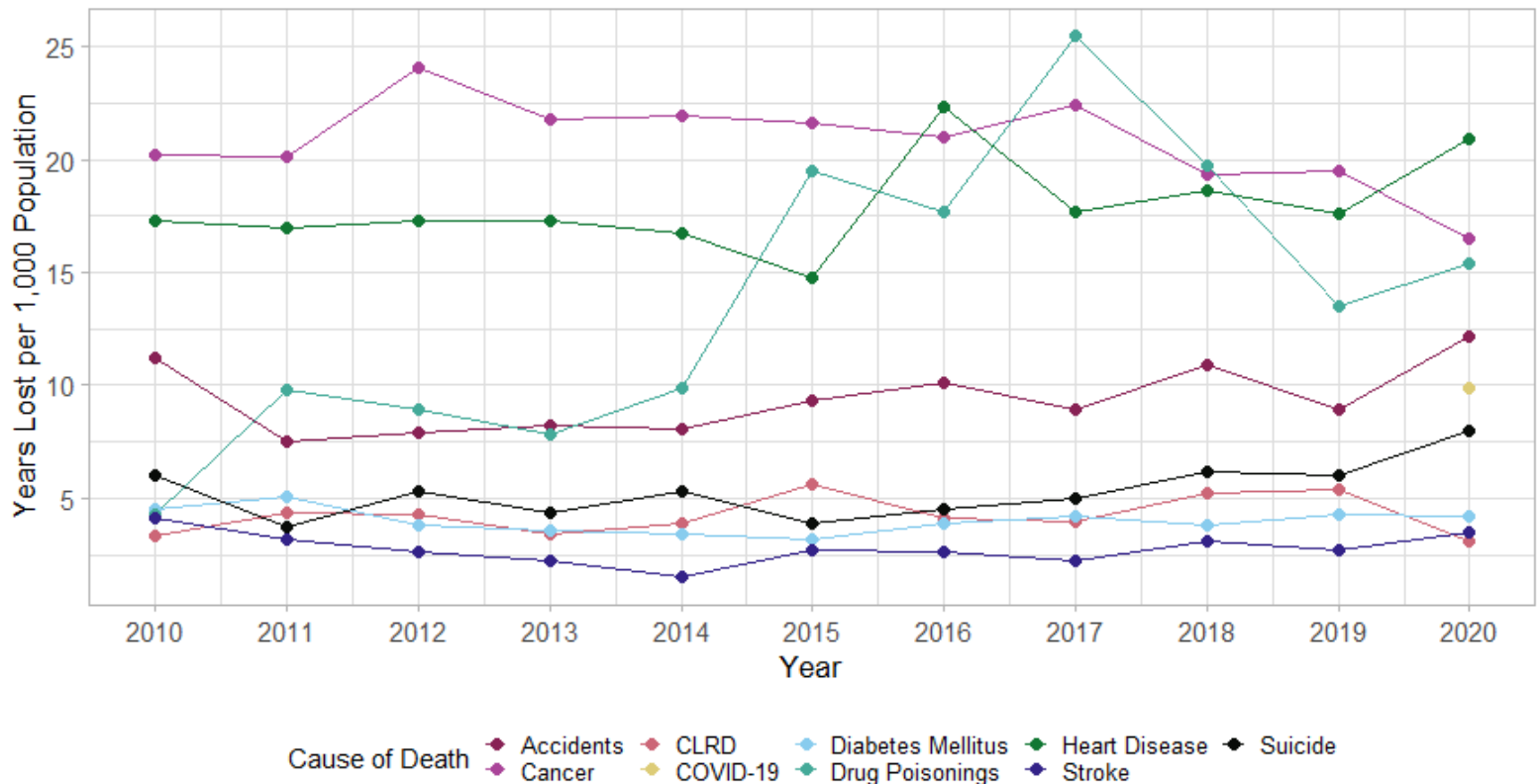| Cause of Death	Female	Rate	Male	Rate
Heart Disease	714	11.4	1857	30.7
Drug Poisonings	570	9.1	1329	22.0
Cancer	874	13.9	1161	19.2
Accidents	490	7.8	1010	16.7
Suicide	165	2.6	817	13.5
COVID-19	429	6.6	832	13.3
Diabetes Mellitus	249	4.0	267	4.4
Stroke	202	3.2	229	3.8
CLRD	164	2.6	221	3.7
Septicemia	173	2.8	103	1.7
Influenza & Pneumonia	111	1.8	40	0.7

CLRD = Chronic Lower Respiratory Disease

- The highest cause of premature death for female residents is *cancer* compared to *heart disease* for male residents
- For every 1,000 people under the age of 75 years, male residents lose 30.7 years of potential life compared to female residents who lose 11.4 years of potential life due to *heart disease*
- Male residents have a higher rate for a majority of causes of premature death. The greatest disparities can be seen from suicide *(5.1x)*, heart disease *(2.7x)*, drug poisonings *(2.4x)*, and accidents *(2.1x)* compared to female residents

Due to low numbers: Alzheimer's was excluded from the gender breakdown

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GRAPH: YPLL RATE 2010-2020

Years of Potential Life Lost (YPLL) Before 75* Years of Age by Leading Causes of Death Annually, Clark County, OH 2010-2020

Cause of Death: Accidents, Cancer, CLRD, COVID-19, Diabetes Mellitus, Drug Poisonings, Heart Disease, Stroke, Suicide
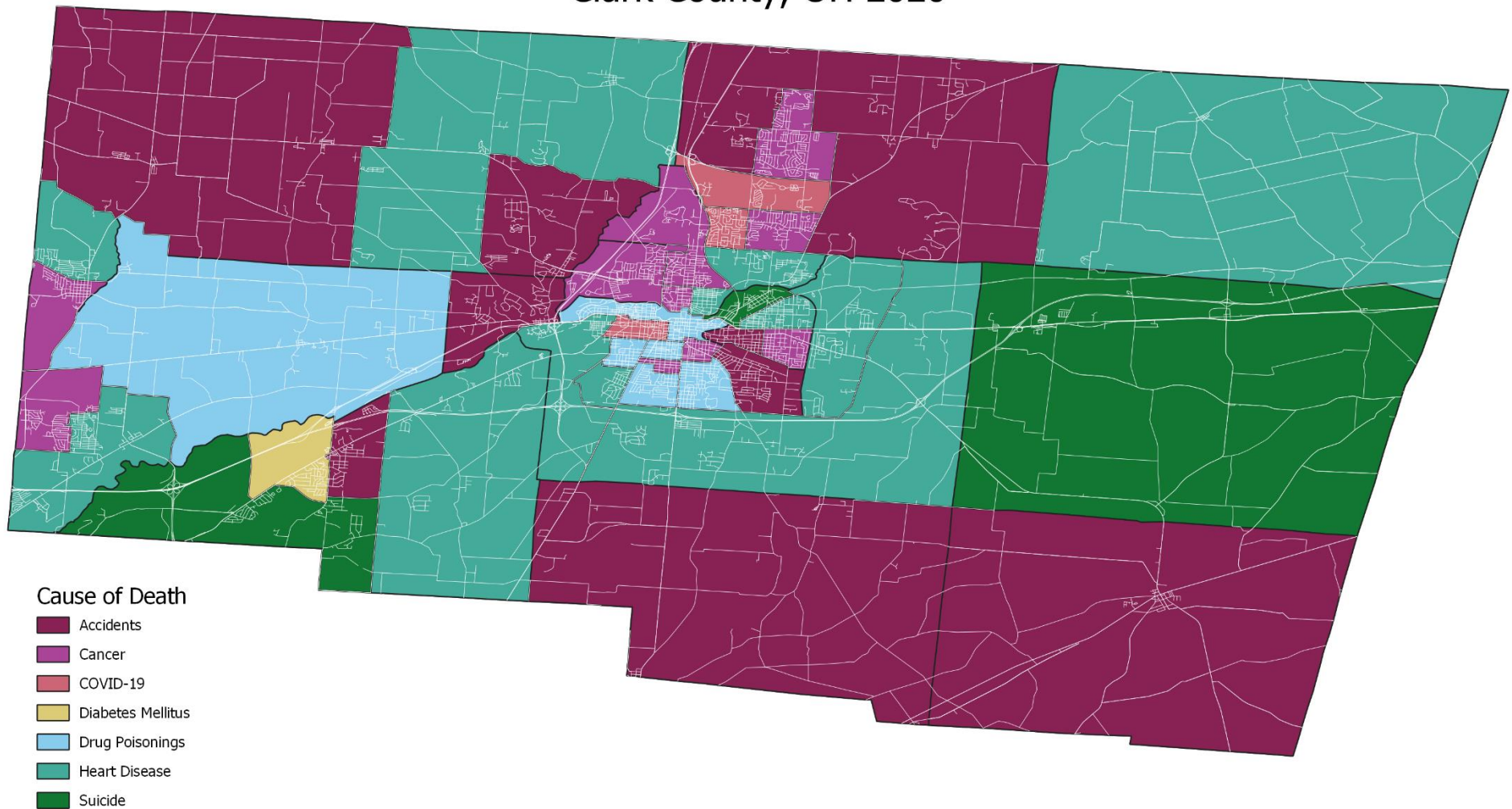
*80 Years of Age used for COVID-19

- Between 2010-2020, **drug poisonings** had the highest YPLL rate (25.5) in 2017 and **stroke deaths** had the lowest YPLL rate (1.5) in 2014
- Between 2010-2020, drug poisonings have *increased 258.1%*, suicides have *increased 33.3%*, and heart disease deaths have *increased 20.8%*
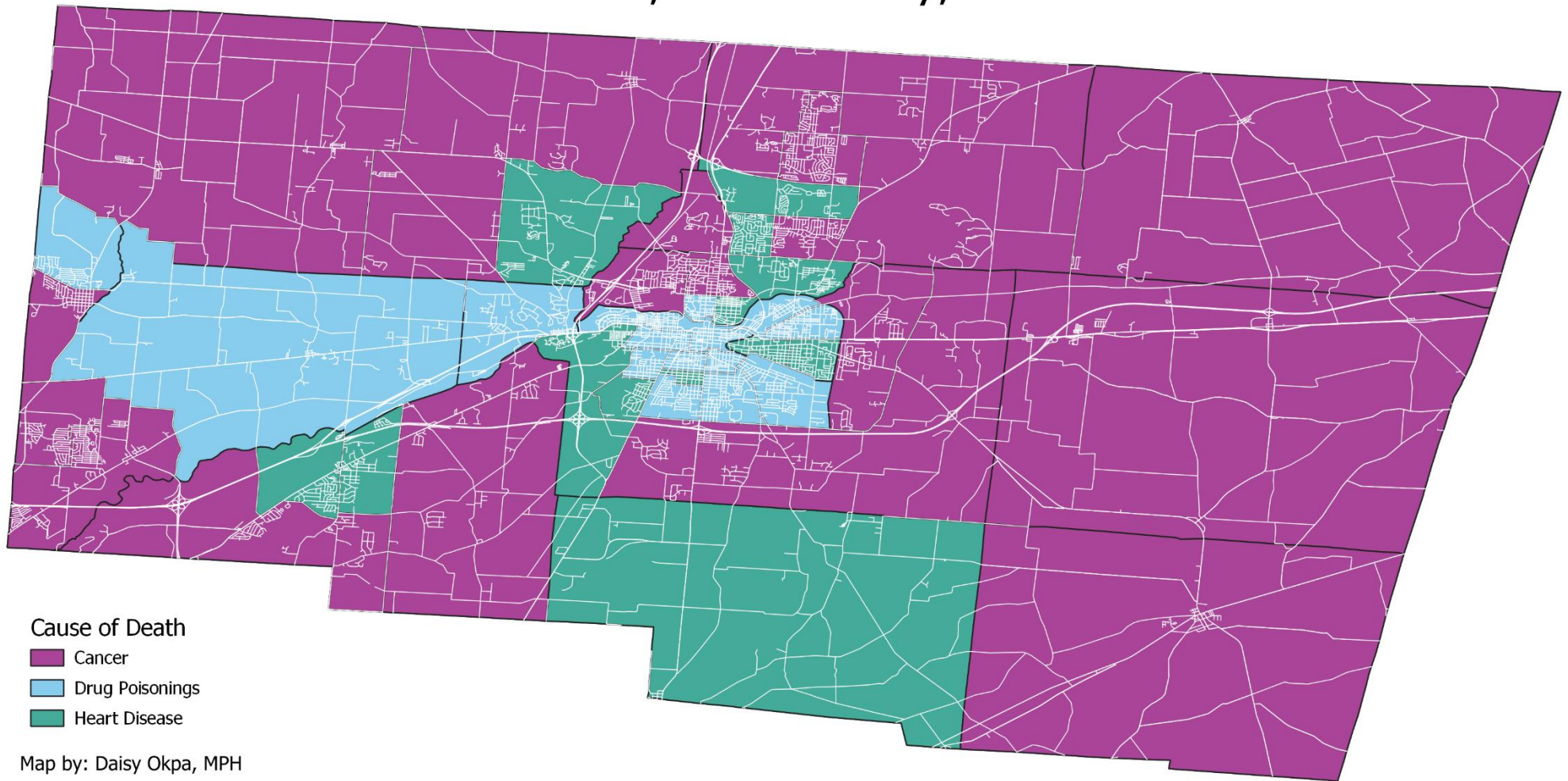
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Highest Cause of Premature Death by Census Tract, Clark County, OH 2020

Cause of Death

- Accidents
- Cancer
- COVID-19
- Diabetes Mellitus
- Drug Poisonings
- Heart Disease
- Suicide

Map by: Daisy Okpa, MPH

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5-Year Aggregation of Highest Cause of Premature Death by Census Tract, Clark County, OH 2016-2020

Cause of Death

- Cancer
- Drug Poisonings
- Heart Disease

Map by: Daisy Okpa, MPH

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TABLE: ICD10 CODES

Cause of Death	ICD10 Codes
Accidents	V01-X39; X50-X59; Y85-Y86
Alzheimer's	G30
Cancer	C00-C97
CLRD	J40-J47
COVID-19	U071
Diabetes Mellitus	E10-E14
Drug Poisonings	X40-X49
Heart Disease	I00-I09; I11, I13, I20-I51
Influenza & Pneumonia	J09-J18
Septicemia	A40-A41
Stroke	I60-I69
Suicide	U03; X60-X84; Y87.0

- Accidents include: transport accidents, motor vehicle accidents, falls, accidental discharge of firearms, accidental drowning and submersion, and more
  - Drug Poisonings (originally under accidents) were separated out to create their own group
- Cancer includes: breast, skin, mouth, respiratory organs, genital organs, digestive organs, eye, brain, thyroid, and more

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POTENTIAL INTERVENTIONS:

Heart Disease
- Increase access to healthy food options (fruits, vegetables)
- Address physical inactivity

Cancer
- Regular cancer screening tests
- Apply sunscreen of at least SPF 30 (skin cancer)
- Reduce tobacco use (cancer of the lung, mouth, pancreas, more)

Drug Poisonings
- Increase access to Naxolone and evidence-based treatments
- Improve awareness and share resources about the risks of prescription opioids

Suicide
- Increase mental health services and mental health awareness
- Address risk factors (drug and alcohol misuse)

CONCLUSIONS:

Heart disease, cancer, and drug poisonings are the top causes of premature death in Clark County in 2020. The burden of these diseases worsen as the number of deaths increases. Addressing these health concerns through community collaboration and partnership can help reduce the number of premature deaths.