

Report

Infection Trends & SIR Analysis

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INFECTION DATA ANALYSIS PROJECT

In the modern healthcare landscape, tracking and controlling healthcare-associated infections (HAIs) is critical for patient safety and hospital performance. This project presents an interactive Excel dashboard that analyses infection data across hospitals, procedures, regions, and infection types.

Using Excel tools such as slicers, timelines, and dynamic charts, the dashboard allows users to visualize infection trends, evaluate hospital performance, and explore infection metrics by region, year, and procedure type.

This dashboard is intended for:

- Environmental researchers to monitor urban and regional pollution trends.
- Government officials and policymakers for environmental planning and control.
- Educators and students to study pollution data using engaging visual tools.

OBJECTIVE:

The main goal of this project is to build a clear, data-driven Excel dashboard that supports better infection control and decision-making.

Key objectives include:

- Visualize infection counts and infection rates across procedures.
- Compare standardized infection ratios (SIR) across hospitals.
- Explore regional trends in reported infections.
- Monitor infection patterns over time using timelines.
- Analyze facility performance against infection control goals.
- Enable slicer-based filtering for interactivity and focus.

DASHBOARD COMPONENTS:

SLICERS:

- Year: Filter by reporting year.
- State: Filter regionally across the dataset.
- Facility Type: Compare community, acute care, etc.
- Procedure Type: Focus on specific surgeries or infection sources.

CHARTS:

- Bar Chart: Infection rate by procedure.

- Column Chart: SIR comparison by hospital.
- Pie Chart: Infection rate breakdown by facility or type.
- Line Graph: Infection trend over time (if timeline data is available).
- KPI Cards: Facilities meeting infection goals.

INSIGHTS & FINDINGS:

High infection counts are observed in major procedures like abdominal or appendix surgeries.

- SIR and Infection Rate are the most useful metrics for comparing infection risk.
- Hospitals vary widely in infection performance, with some exceeding national targets.
- Positive correlation observed between procedure volume and infection count.
- Certain facility types (e.g., smaller community hospitals) tend to report lower rates.

CONCLUSION:

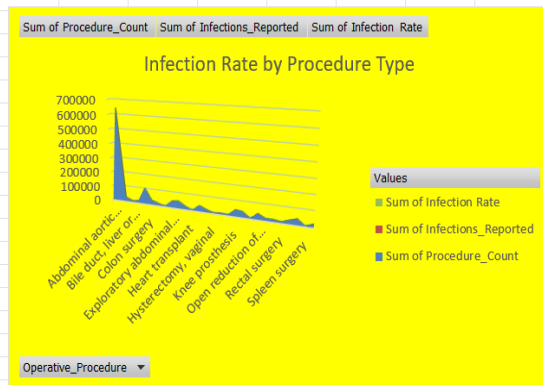
The Infection Surveillance Dashboard offers a dynamic view into critical hospital-acquired infection metrics. By using slicers, timelines, and visual insights, this project empowers:

- ✓ Hospital administrators to make better infection control decisions
- ✓ Policymakers to identify high-risk regions and procedures
- ✓ Analysts and students to explore infection data in an intuitive format

SCREENSHOT:

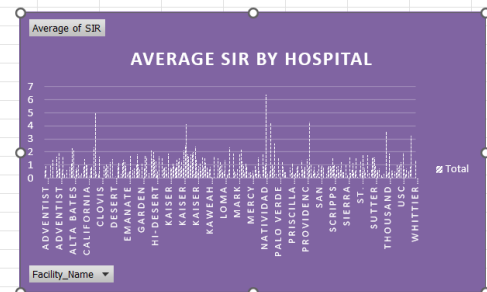
Screenshot of the Pollution Dashboard

Sum of Procedure_Count	Sum of Infections_Reported	Sum of Infection Rate
223	2	0.00896861
641158	3742	0.005836315
27764	58	0.002089036
6615	214	0.032350718
15168	37	0.002439346
111243	210	0.001887759
29407	704	0.023939878
13355	70	0.005241483
1600	7	0.004375
44306	288	0.006500248
50580	193	0.003815737
21239	88	0.004143321
571	7	0.012259194
39105	226	0.005779312
18726	119	0.006354801
2033	7	0.003443187
7456	24	0.003218884
2780	18	0.00647482
45180	177	0.003917663
38452	86	0.002236555
1108	28	0.025270758
39953	279	0.006983205
14903	10	0.000671006
14997	26	0.00173368
6898	38	0.005508843
24446	436	0.017835229
40471	308	0.007610388
1759	9	0.005116543
20820	73	0.003506244

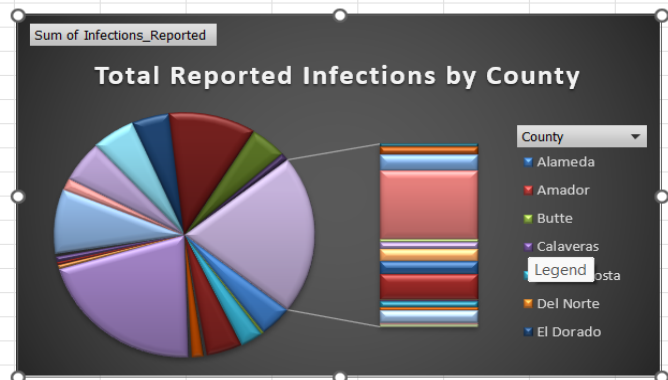


Row Labels	Average of SIR
Adventist Health and Rideout	0.634285714
Adventist Health Bakersfield	0.964705882
Adventist Health Clearlake	0
Adventist Health Delano	0
Adventist Health Glendale	0.030555556
Adventist Health Hanford	1.014375
Adventist Health Howard Memorial	0.037142857
Adventist Health Lodi Memorial	1.425
Adventist Health Mendocino Coast	0
Adventist Health Reedley	0
Adventist Health Selma	1.95
Adventist Health Simi Valley	0.736666667
Adventist Health Sonora	0
Adventist Health St. Helena	0.6
Adventist Health Tehachapi Valley	1.636666667
Adventist Health Tulare	0.28
Adventist Health Ukiah Valley	0
Adventist Health White Memorial	0.612857143
Adventist Health White Memorial Montebello	0
AHMC Anaheim Regional Medical Center	0
AHMC Seton Medical Center	0
Alameda Hospital	0
Alhambra Hospital Medical Center	0.872
Alta Bates Summit Medical Center	1.144117647
Alta Bates Summit Medical Center-Alta Bates Campus	2.293571429
Anaheim Global Medical Center	2.1
Antelope Valley Medical Center	0.187368421
Arrowhead Regional Medical Center	0.7
Bakersfield Heart Hospital	0.815

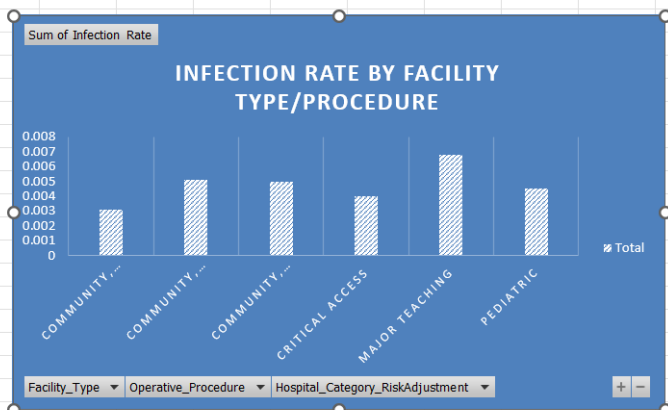
Adventist Health Reedley (Facility_Name)
Row: Adventist Health Reedley



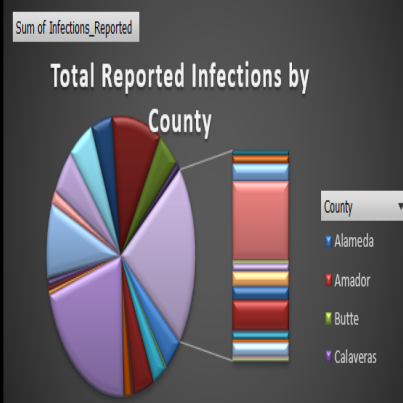
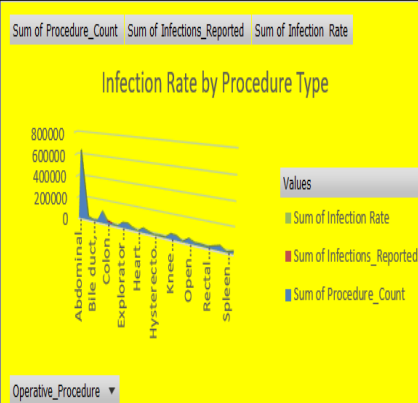
Row Labels	Sum of Infections_Reported
Alameda	306
Amador	2
Butte	26
Calaveras	0
Contra Costa	208
Del Norte	0
El Dorado	8
Fresno	330
Humboldt	14
Imperial	10
Inyo	8
Kern	108
Kings	20
Lake	8
Lassen	0
Los Angeles	1570
Madera	2
Marin	38
Mendocino	12
Merced	26
Mono	0
Monterey	50
Napa	16
Nevada	12
Orange	636
Placer	118
Plumas	0
Riverside	408
Sacramento	402



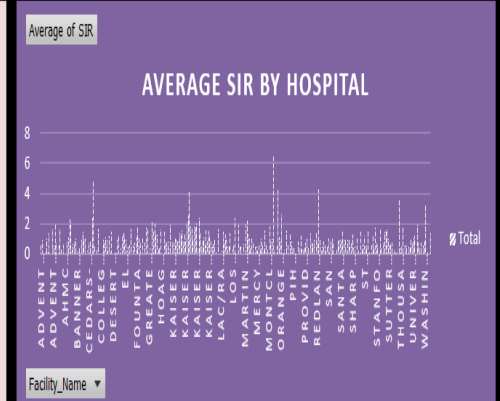
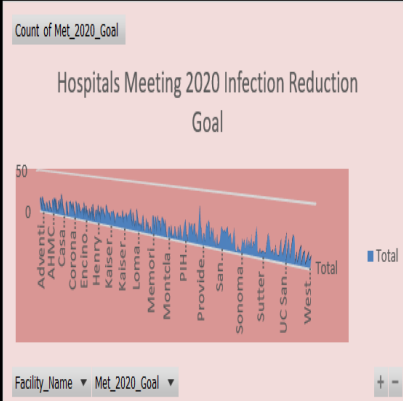
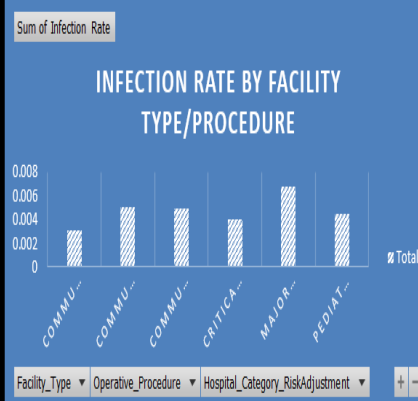
1	Row Labels	Sum of Infection Rate
2	Community, <125 Beds	0.003087286
3	Community, >250 Beds	0.00509615
4	Community, 125-250 Beds	0.004957294
5	Critical Access	0.004004711
6	Major Teaching	0.006782838
7	Pediatric	0.00448682
8	Grand Total	0.005836315



Infection Trends & SIR Analysis Dashboard



Procedure_Co...	County	Facility_Name
57	Alameda	Bakersfield Hear...
58	Amador	Bakersfield Mem...
59	Butte	Banner Lassen ...
60	Calaveras	Barstow Commu...
61	Contra Costa	Barton Memorial...
62	Del Norte	Bear Valley Com...
63	El Dorado	California Hospit...



Dataset link: <https://catalog.data.gov/dataset/surgical-site-infections-ssis-for-operative-procedures-in-california-hospitals-a6bf6>

Github link:
<https://github.com/VinayDhaniyanumero/Infection-Trends-SIR-Analysis>