

Table S1 Large Cities with mask mandates in noMMC counties

| City | | County | | Population City/County |
|------------|------------|---------|------------|---------------------------|
| Name | Population | Name | Population | |
| Emporia | 24765 | Lyon | 33195 | 75% |
| Hays | 20852 | Ellis | 28553 | 73% |
| Manhattan | 53678 | Riley | 74232 | 72% |
| Marion | 1787 | Marion | 11884 | 15% |
| Osawatomie | 4266 | Miami | 34237 | 29% |
| Paola | 5670 | Labette | 19618 | 49% |
| Parsons | 9665 | Cowley | 34908 | 35% |
| Winfield | 12057 | | | |

| Table S2 | | Groups after step 2 | |
|--------------------|---------------------|---------------------|--|
| NoMMC | | MMC | |
| Anderson County | Logan County | Allen County | |
| Barber County | McPherson County | Atchison County | |
| Barton County | Meade County | Bourbon County | |
| Butler County | Miami County | Crawford County | |
| Chase County | Nemaha County | Dickinson County | |
| Clark County | Neosho County | Franklin County | |
| Clay County | Osage County | Gove County | |
| Coffey County | Osborne County | Harvey County | |
| Doniphan County | Ottawa County | Jewell County | |
| Edwards County | Pawnee County | Lyon County | |
| Elk County | Pottawatomie County | Mitchell County | |
| Ellsworth County | Rice County | Montgomery County | |
| Finney County | Seward County | Morris County | |
| Ford County | Sheridan County | Pratt County | |
| Graham County | Sherman County | Reno County | |
| Grant County | Stafford County | Republic County | |
| Gray County | Stevens County | Saline County | |
| Hamilton County | Sumner County | Scott County | |
| Haskell County | Thomas County | Sedgwick County | |
| Jackson County | Trego County | Shawnee County | |
| Jefferson County | Wabaunsee County | Stanton County | |
| Kearny County | Wallace County | | |
| Kingman County | Washington County | | |
| Kiowa County | Wichita County | | |
| Leavenworth County | Wilson County | | |
| Lincoln County | Woodson County | | |
| Linn County | | | |

| Table S3 Steps 3 to 4b for boundaries of mCDR>600 in noMMC and mCDR>805 in MMC | | | | | | | | | |
|---|-------------|------------|------------------------------|-----------------------------|-----------|--------|------------------|--------|-------|
| STEP 3 | counties | pop% of KS | population | % infected | infected | deaths | CFR | mCDR | |
| NoMMC | 74 | 24,2% | 704210 | 1,48% | 10403 | 137 | 1,32% | 1048,8 | |
| MMC | 20 | 19,1% | 556097 | 1,36% | 7563 | 156 | 2,06% | 1040,1 | |
| Eliminated | 11 | 56,7% | | | | | CHI ² | 0,0001 | 0,83% |
| | | | | | | | RR | 1,58 | |
| | | | | | | | 95% CI | 1,34 | |
| | | | | | | | 95% CI | 1,84 | |
| STEP 4a | | | | | survivors | dead | CFR | | |
| NoMMC | | | | | 10403 | 137 | 1,32% | | |
| MMC | | | | | 8215 | 156 | 1,90% | | |
| | | | | | | | CHI ² | 0,0015 | |
| | | | | | | | RR | 1,45 | |
| | | | | | | | 95% CI | 1,23 | |
| | | | | | | | 95% CI | 1,69 | |
| STEP 4b | | population | additional death in infected | additional death in all MMC | | | | | |
| | RR | 2096683 | 57 | 15802 | | | | | |
| | lower 95%CI | | 39 | 10812 | | | | | |
| | upper 95%CI | | 71 | 19683 | | | | | |

Table S4 Adjusting RR for a rate of 85% of deaths with COVID-19 as underlying cause

| noMMC | MMC | |
|-------|-------|--|
| 9880 | 13665 | infected |
| 95 | 241 | deaths |
| 0 | 111 | Thereof additional deaths by mask mandate ¹ |
| 73 | 101 | deaths with COVID-19 as underlying cause of death (85%) w/o mask m. ² |
| 73 | 212 | deaths with COVID-19 as underlying cause of death ³ |
| 0,74% | 1,55% | CFR (for deaths with COVID-19 as underlying cause of death) |
| | 2,10 | RR (for deaths with COVID-19 as underlying cause of death) |

¹ As calculated in step 4b

² ([deaths total] * 85% – [additional deaths by mask mandate]) * [infected in group] / [infected total]

³ Total of the two rows above

Figure S1 Scatterplot of mCDR vs. CFR

