# LIMITED-SCOPE PERFORMANCE AUDIT REPORT

## The Kansas Department of Health and Environment: Evaluating Disease Intervention Specialists and Sexually Transmitted Infection Case Trends


**AUDIT ABSTRACT**

Disease intervention specialists are state or county staff who primarily investigate cases of syphilis and HIV to curb the spread of these sexually transmitted infections. Between 2013 and 2016, cases of sexually transmitted infections increased in Kansas, with syphilis increasing most significantly. Over that same period, we estimated the number of disease intervention specialists working in Kansas did not change. Between these two factors, we estimated the number of syphilis and HIV cases per disease intervention specialists increased about 65% across the state between 2013 and 2016.



**A Report to the Legislative Post Audit Committee**
**By the Legislative Division of Post Audit**
**State of Kansas**
**February 2018**

**L-18-002**

## From the Legislative Post Auditor:

This limited-scope audit was authorized by the Legislative Post Audit Committee at its December 15, 2017 meeting. It addresses the following question: How has the number of disease intervention specialists funded by the Department of Health and Environment compared to the number of sexually transmitted infections in recent years?

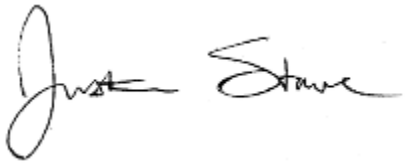
To answer this question, we interviewed officials at the Kansas Department of Health and Environment, Sedgwick County Health Department, and Wyandotte County Health Department, reviewed documentation about case counts for sexually transmitted infections and disease intervention specialist positions between 2013 and 2016—the most recent data KDHE had available. We then compared the number of disease intervention specialist workers to cases of sexually transmitted infections across the state. We did not do any work to evaluate whether disease intervention specialists are effective at reducing the spread of sexually transmitted infections, nor did we evaluate the extent to which the distribution of specialists was appropriate.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. Overall, we believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Audit standards require that we report on any work we did related to internal controls, but a review of internal controls was not part of the scope of the audit as approved by the Legislative Post Audit Committee.

This audit was requested by Representative Tom Burroughs and conducted by Josh Luthi. Chris Clarke was the audit manager. If you need any additional information about the audit's findings, please contact Josh at (785) 296-3792.

Sincerely,



Justin Stowe
Interim Legislative Post Auditor
February 14, 2018

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# How Has the Number of Disease Intervention Specialists Funded by the Department of Health and Environment Compared to the Number of Sexually Transmitted Infections in Recent Years?

## *Background Information*

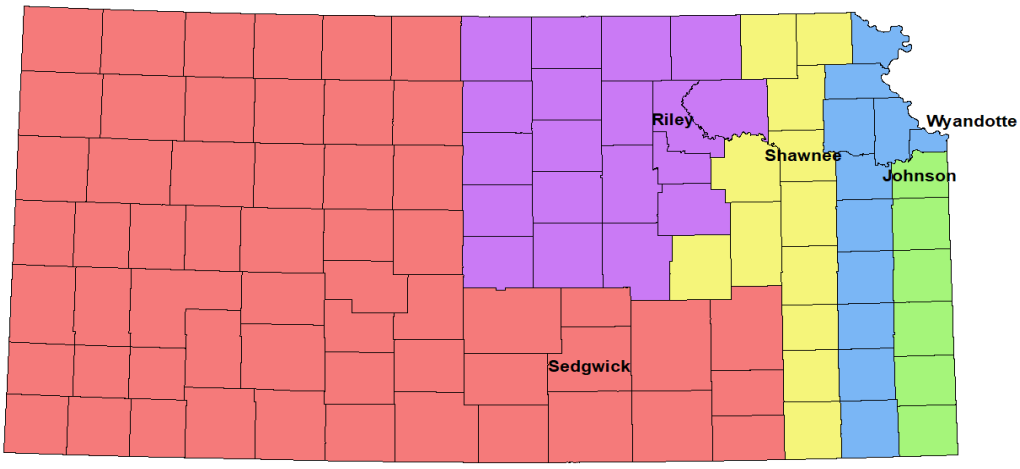
**Sexually transmitted infections are transmitted through intimate or sexual contact and can have significant negative health effects.** Sexually transmitted infections (STIs), also referred to as sexually transmitted diseases, are infections passed from one individual to another through intimate physical or sexual contact. The risk of contracting an STI can be reduced or eliminated by using condoms, having a relationship with an uninfected partner, or by not having intimate physical contact with others. STIs can have a variety of negative health effects, including headaches, sores, sterility issues, complications with pregnancies, and death. However, infections may not result in any symptoms. There are many kinds of STIs, but this audit focuses only on chlamydia, gonorrhea, syphilis, and HIV because these are the STIs KDHE monitors.

**Disease intervention specialists work to curb the spread of sexually transmitted infections in Kansas.** Disease intervention specialists intervene in the spread of STIs by contacting individuals who may be infected, identifying and notifying partners of their exposure to these infections, and assisting with treatments. Specialists may commit significant time to each case to identify, meet, interview, test, and treat infected individuals.

The state and county officials we spoke with told us disease intervention specialists have been primarily focused on cases of syphilis and HIV. KDHE officials told us this is because chlamydia and gonorrhea are so prevalent it is inefficient to work those cases. In contrast, syphilis and HIV are less common and can be effectively addressed. However, disease intervention specialists have occasionally worked on cases of gonorrhea and chlamydia in the past.

**Disease intervention specialists are assigned to specific regions of Kansas and are responsible for STI cases their region.** From 2013 through 2016, Kansas was divided into five regions. KDHE officials told us they periodically redesign regions to balance caseloads for disease intervention specialists in each region. KDHE officials significantly modified the regions in 2013 and ***Figure 1*** on page 2 show the regions since 2013. Because of this change in the area covered by the regions in 2013, we focused this report on data from 2013 and 2016 to ensure comparable data. We refer to each region in terms of the counties in which disease intervention specialists are stationed, as depicted in ***Figure 1***.

**Figure 1**
**Regional Assignment Areas for Disease Intervention Specialists (2013-2016)**




Source: KDHE data on disease intervention specialist assignment areas for 2013-2016.

**The Kansas Department of Health and Environment (KDHE) uses a combination of state and federal dollars to fund disease intervention specialists.** According to KDHE officials, specialists are employed by the State of Kansas, Sedgwick county, and Wyandotte county. KDHE receives multiple STI-related grants from the Centers for Disease Control and Prevention (CDC), which it uses in combination with other funding sources such as AIDS Drug Assistance Program rebates and state general fund dollars to hire disease intervention specialists. In 2013, KDHE reported receiving about $2.2 million in CDC grant funding. However, in 2016, they reported receiving about $1.8 million, a decrease of about $400,000. Historically, KDHE also provided CDC grant money to Sedgwick and Wyandotte counties to at least partially fund their specialists. In 2016, KDHE provided about $345,000 to Sedgwick and Wyandotte counties. However, in July 2017, KDHE stopped providing this funding to Wyandotte county.

## *Finding #1: From 2013 through 2016, Sexually Transmitted Infection Case Counts in Kansas Increased Statewide and Regionally, Although Not All Counties Were Affected*

To evaluate trends in case counts for chlamydia, gonorrhea, syphilis, and HIV, we reviewed historical county-level data through 2016—the most recent year for which KDHE had complete data. We focused on these four STIs because they are the ones KDHE and the CDC focus on. KDHE officials told us this was the case because these four STIs are ones that medication can effectively treat or control. However, when we compare STI cases to disease intervention specialist staffing, we do so only for cases of syphilis and HIV because those are the two STIs specialists focus on. Readers should be aware that case counts refer to the number of new infections identified in a given year. Further, this data only reflects cases that were identified and reported. It is possible there are infected individuals who have not been identified.

**From 2013 to 2016, cases of chlamydia, gonorrhea, and syphilis increased from about 13,600 cases to about 16,000 cases, an overall increase of about 18%.** Chlamydia cases are by far the most prevalent and account for most of the case counts. However, chlamydia cases were relatively stable for the five years we reviewed. Cases of gonorrhea and syphilis, however, increased significantly. Case counts for each STI are shown in ***Figure 2*** below.

**Figure 2**
**Case Counts for Select Sexually Transmitted Infections in Kansas, 2013 & 2016**

| STI Type | 2013 | 2016 | % Increase |
|---|---|---|---|
| **Chlamydia** | 11,094 | 12,170 | 10% |
| **Gonorrhea** | 2,184 | 3,363 | 54% |
| **Syphilis (a)** | 144 | 303 | 110% |
| **HIV (b)** | 134 | 146 | 9% |
| **Total** | **13,556** | **15,982** | **18%** |

(a) These counts include only cases of primary, secondary, and early latent syphilis.
(b) These counts refer only to new cases of HIV identified in the given year.
Source: KDHE STI Case Data, 2013 & 2016 (audited)

As ***Figure 2*** shows:

- **Chlamydia cases increased by about 10%, from about 11,100 cases in 2012 to about 12,200 cases in 2016.** Major urban areas such as Johnson county, Sedgwick county, and Wyandotte county were the most affected, with each of the three counties experiencing more than 1,000 cases of chlamydia each year. All counties had at least one case of chlamydia during the years we reviewed.

- **Gonorrhea cases increased by about 50%, from about 2,200 cases in 2013 to about 3,400 cases in 2016.** Major urban areas were the most affected. Sedgwick county had just over 1,000 cases in 2016, while Wyandotte, Shawnee, and Johnson counties followed with 512 cases, 461 cases, and 377 cases, respectively. These urban counties accounted for about 70% of the cases statewide and many Kansas counties had no cases. In each year, anywhere from 33 to 39 counties had no cases of gonorrhea, and 15 counties had no cases for any of the years in our review.

- **Syphilis cases increased by 110%, from 144 cases in 2013 to 303 cases in 2016.** Urban areas were the most affected. Sedgwick county had 114 cases in 2016, while Johnson, Wyandotte, and Shawnee counties had 38, 32, and 27 cases, respectively. These counties accounted for about 70% of the cases statewide and many counties saw few to no cases. For example, in 2016, 72 counties had no cases of syphilis, and 56 counties had no cases in any of the years in our review.

- **New cases of HIV did not change significantly from 2013 through 2016, with 134 cases in 2013 and 146 cases in 2016.** While HIV case counts did not change significantly in aggregate, cases in the Sedgwick county region increased by 20, or almost 60% from 2013 to 2016. In contrast, the other four regions in the state experienced relatively small increases or decreases during the same period (we cannot discuss HIV cases in terms of specific counties because of confidentiality concerns). Many counties had no cases of HIV. For example, 75 counties had no cases of HIV in 2016, and 57 counties had no cases of HIV in any of the years we reviewed.

## *Finding #2: From 2013 to 2016, the Number of Filled Disease Intervention Specialist Positions Did Not Change*

To determine how many KDHE-funded disease intervention specialist positions existed, we used funding and employment data provided by KDHE in combination with data we obtained from the state's human resources and payroll system. We clarified this information through interviews with KDHE, Sedgwick, and Wyandotte county officials. We also inquired about other positions with responsibilities similar to disease intervention specialists that would not have been funded by KDHE but did not identify any. However, we did not take additional steps, such as contacting other county health departments to identify positions KDHE might not know about. As a result, we may not have fully accounted for other positions involved in managing sexually transmitted infections which are not funded by KDHE. To estimate about how many positions existed and were filled for each year, we determined the number of filled positions in each month of a given year and calculated the yearly average.

**From 2013 to 2016, Kansas' number of filled disease intervention specialist positions did not change.** We calculated full-time equivalency (FTE) based on how long specialist positions were actually filled during a given year. For example, if a position was vacant for 6 months we counted it as a 0.5 FTE for the year. We estimate there were about 9 FTE disease intervention specialists working in the state from 2013 to 2016. We reviewed staffing levels for the intervening years and determined they did not change significantly.

**Of the filled positions we reviewed, five were county health department positions in Sedgwick and Wyandotte county.** These positions generally were filled for the period we reviewed. We determined KDHE provided funding assistance of up to about $345,000 in CDC grant money to Sedgwick and Wyandotte county each year between 2013 and 2016.

- KDHE provided between about $135,000 and $189,000 each year to Sedgwick county, which was used to help fund two disease intervention specialist positions.

- KDHE also provided about $156,000 to Wyandotte county each year, which was used to help fund three disease intervention specialist positions. KDHE stopped providing funding to Wyandotte county for these positions in July 2017.

KDHE did not fully fund these county-level positions and told us each county would have been responsible for the remainder of the costs. The other positions KDHE funded for the years we reviewed were State of Kansas employees funded by a mixture of CDC grants, AIDS Drug Assistance Program rebates, and state general funds.

## *Finding #3: We Estimated the Number of Syphilis and HIV Cases Per Disease Intervention Specialist Increased by About 65% Across the State Between 2013 and 2016*

The disease intervention specialists we analyzed are positioned across the state according to KDHE regions. As noted earlier, KDHE significantly reorganized the regions in 2013. To determine how the number of filled disease intervention specialist positions compared to the number of cases of syphilis and HIV, we calculated the ratio of cases of syphilis and HIV to number of disease intervention specialists at a state level and for each region over time. We focused on syphilis and HIV specifically because those were the two primary STIs disease intervention specialists are responsible for investigating. We expected to see disease intervention specialists assigned such that the number of cases per specialist was relatively balanced across regions. However, we did not do any work to determine whether disease intervention specialists had an effect on the prevalence of STIs, nor did we evaluate the extent to which regional assignments seemed appropriate. Finally, readers should be aware we only analyzed cases in which an individual was determined to have an STI. Disease intervention specialists are also expected to investigate other individuals who had intimate contact with the affected individual, which varies on a case by case basis. Consequently, the case counts may not truly reflect each specialist's workload.

**Statewide, the ratio of cases of syphilis and HIV cases to disease intervention specialists increased by about 65% between 2013 and 2016.** The ratio of cases of syphilis and HIV to disease intervention specialists increased from about 31 cases per specialist in 2013 to about 51 cases per specialist in 2016, a 65% increase. This increase was driven almost entirely by increases in cases of syphilis, which increased from 144 to 303, or 110%, during that time. In 2013, Kansas had about 9 FTE disease intervention specialists, with about 16 cases of syphilis per specialist. In 2016, Kansas had about 9 FTE disease intervention specialists with about 34 syphilis cases per specialist. In contrast, HIV cases remained relatively stable during this time. There were about 15 cases of HIV per specialist in 2013 compared to about 17 cases per specialist in 2016.

**On a regional basis, cases per disease intervention specialist increased dramatically in some regions but not in others.** ***Figure 3*** on page 6 shows the number of syphilis and HIV cases per disease intervention specialist by region in 2013 and 2016. As the figure shows, some regions had dramatic increases in case counts.

- **Sedgwick region cases per specialist nearly quadrupled between 2013 and 2016 because of increased syphilis cases.** In 2013, we estimated about 22 cases of syphilis and HIV per specialist. In 2016, we estimated about 87 cases per specialist, an increase of almost 300%. However, the number of filled specialist positions remained relatively consistent during this time. As a result, the increase in cases per specialist is solely the result of sharp increase in syphilis in the region. KDHE data shows 24 cases in 2013 compared to 114 cases in 2016 in Sedgwick county alone.

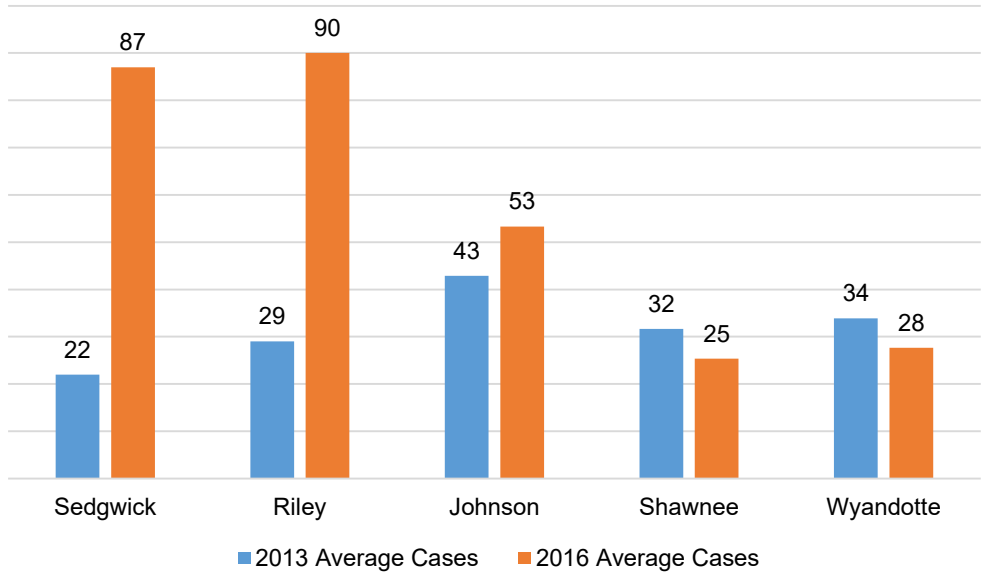
- **Riley region cases per specialist also increased significantly between 2013 and 2016, but this was likely because of vacant specialist positions.** There was only a total of 45 cases of syphilis and HIV in the region in 2016, making it the second least affected region in that year. However, the disease intervention specialist position in this region was vacant for significant portions of 2015 and 2016, which resulted in very high average cases per specialist.

- **Johnson region cases per specialist increased slightly between 2013 and 2016.** From 2013 to 2016, cases increased from about 43 cases per specialist to about 53, a 24% increase.

- **Shawnee region cases per specialist decreased slightly between 2013 and 2016 because of a small staffing increase.** Case counts for syphilis and HIV actually increased from 29 in 2013 to 38 in 2016, a 31% decrease. However, the region gained an additional part-time position in 2015 and 2016, resulting in lower cases per specialist.

- **Wyandotte region cases per specialist decreased slightly between 2013 and 2016 because of a small staffing increase.** From 2013 to 2016, cases per specialist decreased by almost 20%, from 34 cases per specialist down to about 28. In 2013, the region had about 2.33 FTE positions because of a vacancy, but by 2016, they had 3 FTE positions. In that same period, cases of syphilis and HIV increased slightly from 79 to 83.

**Figure 3**
**Comparison of Cases per Disease Intervention Specialist for Syphilis and HIV, 2013 & 2016**




Source: LPA analysis of KDHE case count and staffing data.

## *Recommendations*

None

## *Potential Issues for Further Consideration*

We identified several issues that might be worth evaluating in more detail, but because of the limited scope of the audit, we did not have time to fully develop them. Although we had unresolved questions about the following issues, more audit work would be needed to determine whether they represent an actual problem or not.

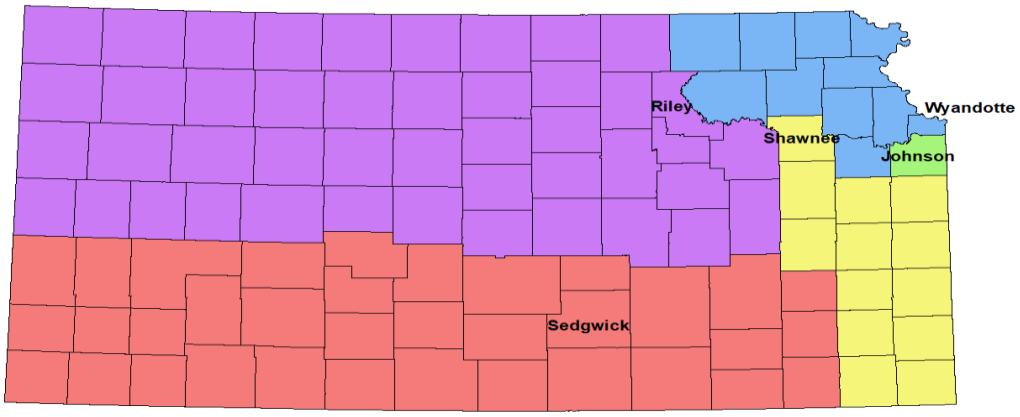
1. KDHE officials told us they periodically redesign the disease intervention specialist assignment areas to create balanced caseloads. As mentioned above on page 5, we only looked at confirmed cases of individuals with an STI, which varied greatly across regions. According to KDHE officials, to measure caseload, we would also need to consider how many other individuals disease intervention specialists are expected to contact in addition to the individual who had an STI. We think there are several additional factors that would need to be considered to assess workload, such as the size of the area for which each specialist is responsible or how cases are geographically distributed. Both of these factors would significantly affect specialist travel time. As shown in ***Figure 4*** on page 8, KDHE changed regions significantly in 2013 and 2017, but we did not assess the workload of each specialist to see if KDHE's redesigns successfully achieved balanced caseloads. Further, we did not explore the rationale for such changes, why the regions went from five to four, or the extent to which disease intervention specialist allocations were appropriate given the case numbers for each region.

2. We could not compare STI cases to disease intervention specialist positions for 2017 because complete data was available at the time of our work.

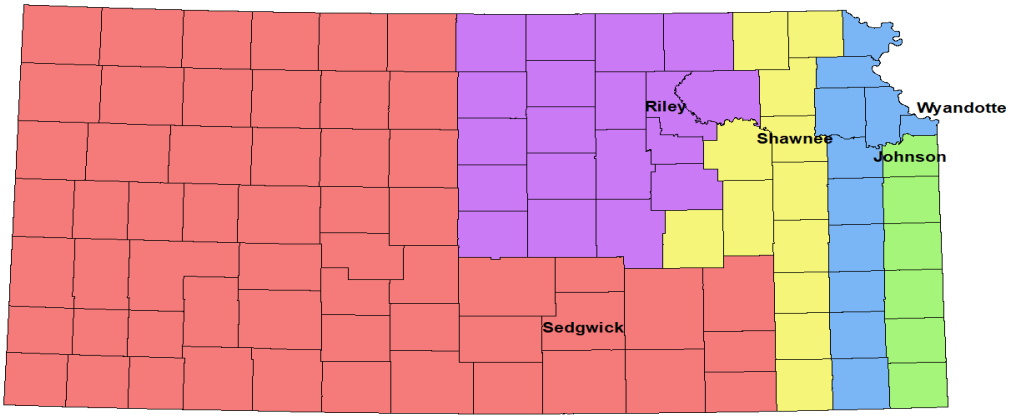
3. KDHE officials told us they have difficulty finding individuals to fill the disease intervention specialist positions. Officials also told us that is because these positions pay less than the private sector, county health departments, and surrounding states.

**Figure 4**
**Comparison of Regional Assignment Areas for Disease Intervention Specialists**

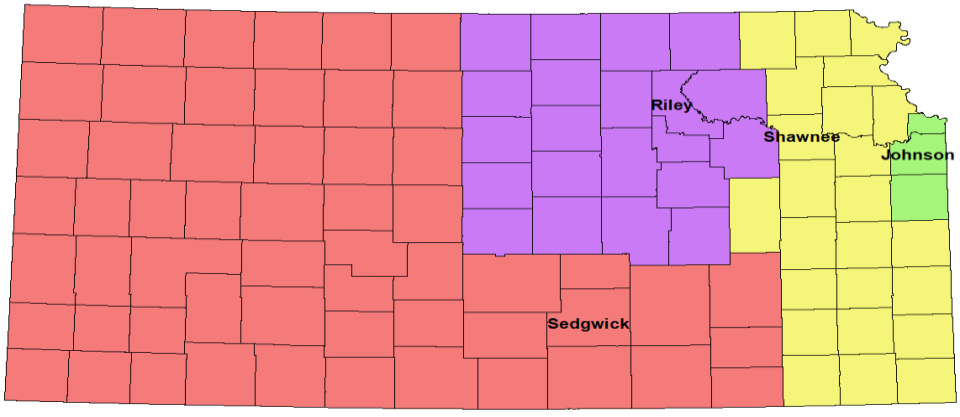
**Regional Assignments, 2012**




**Regional Assignments, 2013-2016**




**Regional Assignments, 2017**




Source: KDHE data on disease intervention specialist assignment areas, 2012-2017.

## *Agency Response*

On February 5, 2018, we provided copies of the draft audit report to KDHE for an official response. We made several modifications to the final report as a result of KDHE's review.

KDHE generally agreed with the audit's findings and conclusions. KDHE officials did not submit a formal response.