The Private Immunization Delivery System for Children in Kansas, 2012

September 2013

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IMMUNIZE KANSAS KIDS

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IMMUNIZE KANSAS KIDS

The Immunize Kansas Kids project is a unique partnership among the Kansas Department of Health and Environment, the Kansas Health Institute and dozens of stakeholder organizations. The goal is simple: to protect every Kansas child from vaccine-preventable diseases.

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ACKNOWLEDGMENTS

Many people contributed their time and knowledge to make this report possible. We would especially like to thank those clinic staff who took time away from their busy patient schedules to supply the information necessary to prepare this report. Additionally, members of the Immunize Kansas Kids coalition provided input and helped to define the purpose of this study and the questions that should be asked of providers. Representatives from many local health departments in Kansas assisted by verifying preliminary lists of clinics in their respective counties and by assisting in follow-up efforts to obtain completed surveys. Numerous members of the staff at the Kansas Health Institute assisted with copying and mailing survey forms, by making follow-up contacts to obtain completed surveys, and by editing and formatting this report. Without the support and collaboration of all of these individuals and organizations, this report would not have been possible.

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EXECUTIVE SUMMARY

Vaccines are frequently cited as one of the greatest achievements of public health. Between 1950 and 2000, the success of vaccination programs in the United States resulted in a greater than 95 percent decline in most vaccine-preventable childhood diseases (Briss). Despite that success, many children still do not receive recommended vaccines and remain at unnecessary risk for serious illness and disease.

In Kansas, childhood immunization rates have fluctuated over the last decade, sometimes ranking among the lowest in the nation. Although many factors contribute to low immunization rates, adequate access to vaccination services is a fundamental prerequisite to improving immunization rates and maintaining the progress that has been achieved since 1950. In comparison to other states, fewer private providers in Kansas offer childhood immunizations (65 percent in 2006) (LeBaron, Pezzino, 2008). Of those who do offer childhood immunizations, even fewer participate in the Vaccines for Children (VFC) program (LeBaron) or offer immunizations to children who receive health insurance through traditional Medicaid or HealthWave (now called KanCare). Local public health departments provide immunization services that supplement the private system and fill the gaps.

This study is the third in a series of similar studies commissioned by the Immunize Kansas Kids coalition to document and describe the characteristics of childhood immunization services in the Kansas private provider system. The study aims to count private-sector clinics offering childhood immunizations in Kansas. For the purpose of this study the unit of analysis was a clinic, defined as a practice location where one or more health care staff offer primary care services to children up to age 5. This study updates and expands upon findings of previous surveys conducted in 2006 and 2009.

KEY FINDINGS

Results from the 2012 Immunization Survey are summarized here. Additional detail is available in the body of this report.

- This study identified 573 private clinics providing primary care to children, 365 of which provide pediatric immunizations. Additionally, two private clinics were identified that operate solely as immunization clinics within a community network of providers, bringing the total number of immunizing clinics to 367. These numbers represent increases of 87 private primary care clinics serving children and 26 private-sector immunizing clinics from those identified in the most recent survey conducted in 2009.
- Sixty-four percent of primary care clinics serving children in Kansas offered immunizations in 2012, compared to 65 percent in 2006 and 70 percent in 2009.
- Two counties do not have any private clinics offering primary care services to children.
- Forty-three counties have no private clinics offering childhood immunizations.
- Nearly all (96.5 percent) immunizing clinics offered immunizations to their privately insured pediatric patients.
- About 40 percent of immunizing clinics did not offer immunizations to children insured by HealthWave (Medicaid or the Children's Health Insurance Program).
- More than half (57 percent) of clinics referred at least some pediatric patients to the local health department for immunizations.
- Immunizing clinics were concentrated in the urban areas of Kansas, predominantly in the eastern half of the state. Large portions of western Kansas had no private clinics offering pediatric immunizations.
- About 80 percent of clinics use an electronic health record system.
- Slightly more than half (56 percent) of immunizing clinics participated in the Vaccines for Children program. This finding is similar to the 56 percent identified in 2009 and 51 percent in 2006.
- Nearly half (49 percent) of responding clinics participated in the statewide immunization registry, KSWebIZ.

DISCUSSION

Compared to previous studies, this study found increased numbers of primary care and immunizing clinics offering services to Kansas children, but a small decrease from previous years in terms of the proportion of primary care clinics offering immunizations to children. It is not certain whether the differences represent real increases in the number of clinics or are the

result of more comprehensive efforts to identify clinic locations. Despite the increased number of clinics, we were unable to identify any private clinics offering childhood immunizations in 43 of 105 Kansas counties. In these 43 counties, childhood immunizations must be obtained through the local health department. Referral of children from their medical home to the local health department for immunizations has the potential to disrupt continuity of care and may result in inconvenience for parents that could translate to less timely immunization or failure to obtain recommended immunizations. Reasons for such low provider participation in an important aspect of preventive services for children are uncertain and may warrant further investigation.

CONCLUSIONS

This study provides an updated snapshot of the private-sector system of childhood immunization in Kansas. While findings suggest that the overall number of immunizing clinics has increased slightly since the last study conducted in 2009, significant portions of rural Kansas have no private clinics that offer childhood immunizations. In these counties, more than 11,000 children receive their immunizations through their local health departments. In counties where private clinics offer immunizations to privately insured patients, many of those clinics do not immunize children who are insured by the HealthWave program, and those children are also referred to the health department.

Providers have many reasons for choosing not to offer immunizations to their young patients. Especially in rural locations where the number of children seen in a practice is small, the costs of maintaining vaccine inventories and current immunization expertise, coupled with increasingly complex schedules of vaccine recommendations, may be significant factors in provider decisions to not offer immunizations.

Although all local health departments offer childhood immunizations and view immunization as an important aspect of their provision of preventive services, referral of a child from his/her primary care physician to the health department for immunization may result in loss of continuity in the child's care. It may also create additional inconvenience and time burden for the child's parents, who must schedule and complete an additional clinic visit to obtain the child's

immunizations. For some parents and children, this inconvenience may result in failure to obtain all recommended immunizations in a timely fashion.

INTRODUCTION

Vaccines are frequently cited as one of the greatest achievements of public health. Between 1950 and 2000, the success of vaccination programs in the United States resulted in a greater than 95 percent decline in most vaccine-preventable childhood diseases (Briss). Despite that success, many children still do not receive recommended vaccines and remain at unnecessary risk for serious illness and disease.

In Kansas, childhood immunization rates have fluctuated over the last decade, sometimes ranking among the lowest in the nation. Although there may be many contributing factors to low immunization rates, adequate access to vaccination services is a fundamental prerequisite to improving immunization rates and maintaining the progress that has been achieved since 1950. Research has confirmed the importance of access to providers in achieving vaccination compliance (Fu). Groom, et al. (2007) found that immunization coverage levels were significantly higher among children who received their immunizations entirely from private providers or a mix of public and private sources than those who were immunized solely through public providers. The American Academy of Pediatrics has endorsed the concept of medical homes for the provision of continuous, coordinated family-centered care and has identified immunization delivery as one of the key preventive care services that should be provided in the medical home. Although research findings have been mixed, some studies have shown that continuity of care during early childhood is associated with higher vaccination rates (Allred, Irigoyne, Ortega, Smith, Pezzino 2008).

Relative to other states, fewer private providers in Kansas offer childhood immunizations (65 percent in 2006) (LeBaron, Pezzino 2008). Of those who do offer childhood immunizations, even fewer participate in the Vaccines for Children (VFC) program[1] (LeBaron) or offer immunizations to children who receive health insurance through Medicaid or the Children's Health Insurance Program (CHIP). Local public health departments provide immunization services to supplement the private immunization system and fill the gaps.

[1] The Vaccines for Children (VFC) program is a federally funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of inability to pay.

This study is the third in a series of similar studies commissioned by the Immunize Kansas Kids (IKK) coalition to document and describe the characteristics of the private provider system for childhood immunization in Kansas. Previous studies conducted in 2006 and 2009 have surveyed private clinics in Kansas and gathered information about their participation in immunization services. These studies found that a substantial number of counties in Kansas had no private clinics offering childhood immunization services and that a small number of counties had no private clinics offering primary care services for children. Those reports have resulted in a series of recommendations and actions from the IKK coalition to encourage growth of the private immunization delivery system in Kansas. The purpose of this study is to update and expand upon previous findings. Specifically, this study was designed to provide an updated listing of the numbers and locations of private clinics offering immunization services to children, and to describe key characteristics of those immunizing clinics.

METHODS

DATA COLLECTION

The primary objective of this study was to measure and describe the availability of immunization services in Kansas by identifying and surveying all private-sector clinics offering primary care services to children. For the purpose of this study the unit of analysis was a clinic, defined as a practice location where one or more health care staff offer primary care services to children up to age 5. Clinics where multiple providers or clinicians practiced in the same location were enumerated only once, while clinics operating in multiple locations were counted for each site. Because all local health departments in Kansas are known to offer childhood immunizations and the focus of this study was on the private provider system, health departments were not included in the list of targeted survey recipients.

A list of possible primary care clinic locations offering services to children was compiled by combining lists of primary care clinics identified in the 2009 IKK clinic study, clinics included in a more recent study of immunization among Medicaid-participating providers (conducted by the Kansas Foundation for Medical Care and the Kansas Department of Health and Environment [KDHE]), medical doctors and doctors of osteopathic medicine licensed to practice in Kansas (obtained from the Kansas Board of Healing Arts licensure file), clinics currently participating in

the Vaccines for Children program or the Kansas Immunization Registry (KSWebIZ), and clinics identified through Internet searches of *Yellow Pages*, *WebMD* and other online physician finder websites for any Kansas provider that appeared to offer primary care services. The combined list was sorted and searched by electronic and manual methods for duplication. Entries that were confirmed as duplicates were removed from the file, bringing the final number of possible clinic locations to 999.

Printed surveys were mailed in December 2012 to each address in the file. A cover letter explaining the purpose of the survey and a postage-paid return envelope was enclosed with each survey. Survey recipients were given the option to complete and return the survey by mail or fax, or to go online and complete the survey there.

Response status for each of the 999 clinics identified on the survey sampling list was tracked in an electronic spreadsheet. Addresses and practice names for all surveys that were returned by the postal service as undeliverable were checked against the Kansas Board of Healing Arts licensure database, the Kansas Secretary of State's Business Entity Search Station, telephone directories and Internet searches to determine the current status and address of each. If the practice was determined to be active but at a different address, a survey was sent to the updated address. Practices that were determined to be out of business or a specialty clinic not offering primary care to children were designated as "ineligible" in the tracking system.

Approximately eight weeks after the initial survey mailings, local health departments in each Kansas county were asked to assist by verifying lists of private clinics offering pediatric immunizations in their respective counties and soliciting completed surveys from clinics that had not yet responded to the survey. As a final follow-up effort, KHI staff members made telephone calls to each eligible outstanding clinic listed in the tracking spreadsheet. With each contact, callers verified with clinic representatives whether the clinic offered primary care to children and whether it offered pediatric immunizations. Those responses were recorded in the tracking spreadsheet. Clinics that did not offer primary care services to children were recorded as "ineligible," and those that offered primary care services to children but not immunizations were recorded as "complete" at that time. No further attempt was made to collect additional

information from these clinics. Clinics confirmed as immunizing were given a brief explanation of the purpose of the study and asked if they would complete a survey if it were sent to them again. Clinics that declined to receive a second survey were recorded in the tracking system with a final status of "refused." Surveys were redistributed to assenting clinics using their preferred contact method (email, fax or postal service). Two weeks were allowed following the completion of all telephone follow-ups for survey returns, and a final status of "non-response" was assigned to clinics still outstanding.

Responses from surveys returned by mail or fax were entered into the online survey system to create a single database of responses. Following the completion of all data collection activities, response data were reviewed and cleaned for analysis. Responses were reconciled with the sampling frame listing, and a small number of duplicate responses were removed from the dataset.

ANALYSIS

For the purpose of this study the unit of analysis was a clinic, defined as a practice location where one or more health care staff offer primary care services to children up to age 5. To facilitate analysis, several variables were created and added to the analytic data file of survey responses:

- Clinic Size ― Groups were defined as "solo" clinics (0–1 physician), "medium"-size clinics (2–9 physicians) or "large" clinics (10 or more physicians).

- Immunization Level ― Clinics were defined as immunizing "all" or "some" children, based upon responses to a series of questions about whether immunizations were provided to children with various types of insurance coverage.

A second analytic file was constructed that included summary counts of primary care and immunizing clinics offering services to children in each Kansas county (derived from the survey responses), in addition to county population counts, population density, number of live births in the county in 2011 and county-level immunization coverage rates from the 2010–2011

Retrospective Immunization Survey conducted by the Kansas Department of Health and Environment (KDHE). Two categorical variables were added to this file:

- Population Density — Defined as "urban" (more than 150 people/square mile), "semi-urban" (20 or more but fewer than 150 people/square mile), or "rural" (fewer than 20 people/square mile).

- Child Population — Defined as "high" (600 or more children age 0–5 residing in the county) or "low" (up to 600 children age 0–5).

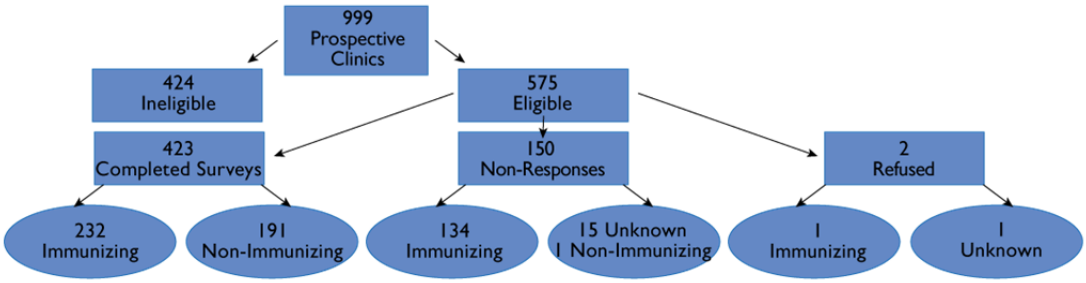
STATISTICAL METHODS

Response data were analyzed using univariate (i.e., frequency distributions) and bivariate (i.e., tabulations) techniques. Where appropriate, chi-square (for categorical variables) and t-tests (for continuous variables) were used to test the significance of differences between groups, with a significance level set at p=0.05.

RESULTS

Of the 999 clinics identified as possibly offering primary care services to children, 424 were determined to be ineligible because they were duplicates, no longer in operation or did not provide pediatric primary care services. From the remaining 575 eligible clinics, completed survey information was obtained for 423, resulting in an overall survey response rate of 73.6 percent (Figure 1). Among the non-responding clinics, the availability of immunization services was confirmed for all but 16 through telephone follow-up calls or information available on the clinic's website. In total, the availability of pediatric immunization services was verified for 559 of the 575 (97.2 percent) eligible clinics.

Figure 1. **Survey Responses**

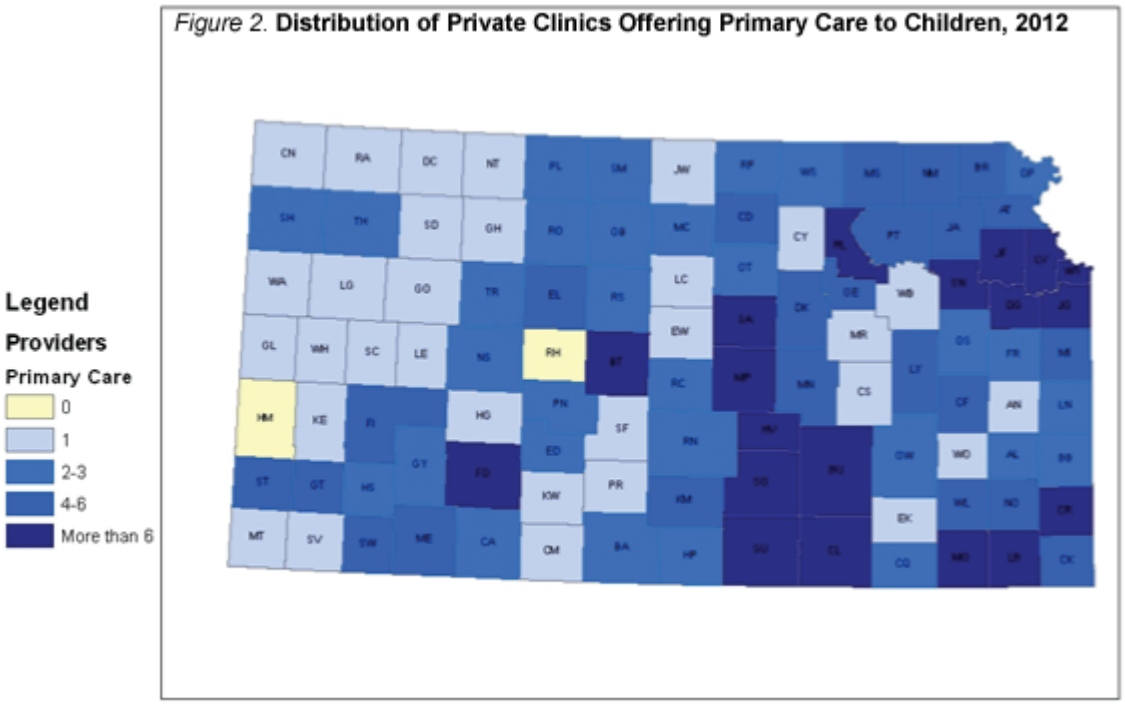


Source: Data collected by the 2012 IKK Clinic Survey.

THE PRIMARY CARE SYSTEM SERVING KANSAS CHILDREN

Two free-standing private immunization clinics that did not provide primary care at their locations were identified and were removed from the list of 575 eligible clinics. That left 573 private clinics offering primary care services to children, an increase from 486 clinics identified in the 2009 survey and 479 in the 2006 survey. Two Kansas counties do not have a private clinic offering primary care services to children, compared to three counties in 2009 and 12 in 2006. Both of the counties where there were no primary care clinics serving children in 2012 are sparsely populated counties in western Kansas with fewer than 300 children age 0–5. Neither of the two were among the counties identified in 2009 as lacking a private primary care clinic serving children.

Figure 2. **Distribution of Private Clinics Offering Primary Care to Children, 2012**



Source: Data collected by the 2012 IKK Clinic Survey.

THE IMMUNIZATION DELIVERY SYSTEM

Of the 573 private clinics identified as offering primary care services to children in Kansas, 365 (63.7 percent) reported that they offer immunizations to some or all of the children served in their clinics. Additionally, two private clinics (in Salina and Independence) were identified that operate solely as immunization clinics within a community network of providers, bringing the

total number of immunizing clinics to 367. The total number of immunizing clinics is higher than in the 2006 or 2009 surveys, but the percentage of primary care clinics offering immunizations to children is somewhat lower than what was found in previous years (Table 1).

Table 1. **Private Clinics Serving Kansas Children, 2006–2012**

	2006	2009	2012
Number of Primary Care Clinics	479	486	573
Number of Immunizing Clinics	277	341	367
Percent of Clinics Immunizing	65.3%	70.2%	64.0%
Counties with 0 Primary Care Clinics	12	3	2
Counties with 0 Immunizing Clinics	49	39	43

Source: Data collected by the 2006, 2009 and 2012 IKK Clinic Surveys.

Because the methodology used in this study to compile a list of prospective primary care clinics was more comprehensive than in previous studies, some caution should be applied when comparing the number of immunizing clinics identified in this survey with results of earlier studies. It is uncertain whether the larger numbers of primary care and immunizing clinics identified in this survey represent real increases or simply reflect a higher degree of success in identifying existing clinics.

Characteristics of immunizing clinics that completed the survey are shown in Table 2. Nearly three-quarters (74.2 percent) of the responding clinics characterized their primary specialty as family practice. About one-third reported that their clinic was hospital-owned, while slightly more than half (56.7 percent) reported no corporate affiliation. About one-third (33.9 percent) of responding clinics were solo practices, where one or fewer physicians provided services (some were staffed only by physician assistants or advanced-degree nurses). This number represents a decrease from the 45.5 percent of clinics identified as solo practices in 2009.

Table 2. **Characteristics of Immunizing Clinics**

Characteristic	Number	Percent
Practice Specialty (n=225)		
• Pediatric	43	19.1%
• Family Practice	167	74.2%
• Other	15	6.7%
Practice Affiliation (n=233)		
• No affiliation reported	132	56.7%
• Practice network or affiliation	17	7.3%
• Hospital-owned	78	33.4%
• Unable to classify	6	2.6%
Practice Size (n=218)		
• Solo (0–1 physician)	74	33.9%
• Medium (2–9 physicians)	135	61.9%
• Large (10 or more physicians)	9	4.1%
County Population Density (n=233)		
• Located in urban county	102	43.8%
• Located in semi-urban county	95	40.8%
• Located in rural county	36	15.5%

Source: Data collected by the 2012 IKK Clinic Survey.

Private provider clinics that offered immunizations to at least some groups of children were identified in 62 of the 105 Kansas counties. Clinics in rural counties were significantly less likely to offer immunizations than those in semi-urban or urban counties ($p<0.001$). Almost half (49 percent) of immunizing clinics reported that they offered immunizations to all children seen in their clinic, regardless of health insurance status. Table 3 shows details by specific categories of insurance coverage, and these results are similar to responses obtained in the 2006 survey. Fifty-seven percent of immunizing clinics reported that they refer at least some children to the local health department for immunization. Immunizing clinics in rural or semi-urban counties were significantly more likely to offer immunizations to all children seen in their clinics than their urban peers ($p<0.001$).

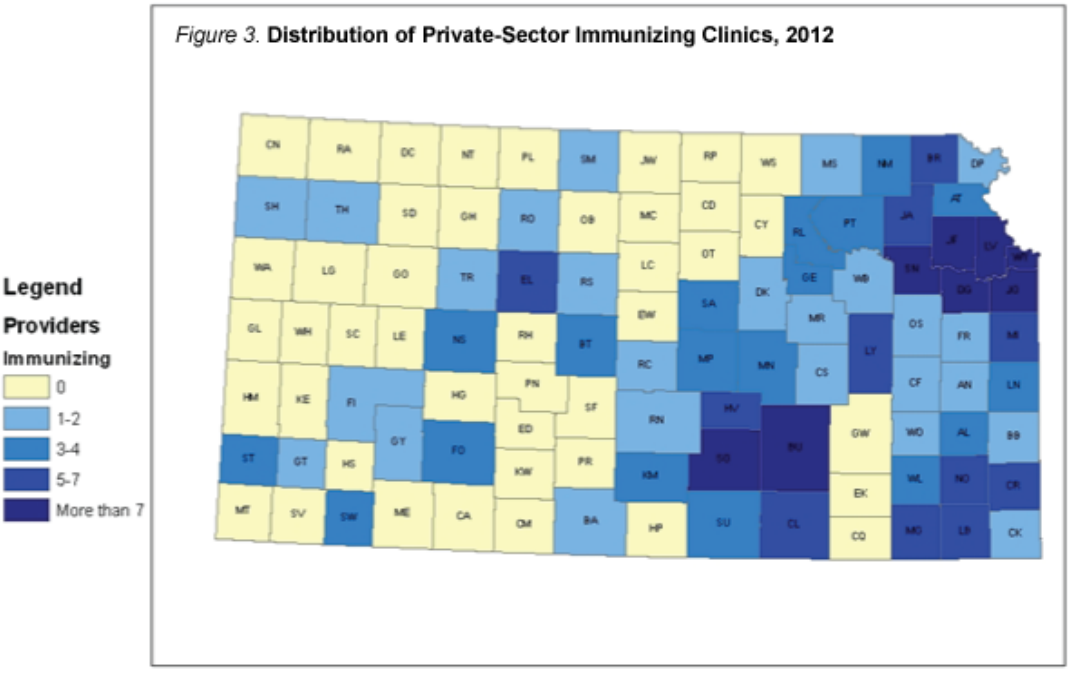
Table 3. **Immunization Services Offered, by Health Insurance Status, 2012**

Offer Immunizations to:	Number of Clinics (N)	Percent of Responding Clinics (%)
Privately insured children	222	96.5%
Uninsured children	180	83.3%
Children covered by HealthWave 19 (Medicaid)	133	62.4%
Children covered by HealthWave 21 (CHIP)	129	61.1%
Children covered by traditional Medicaid	135	63.1%
Children covered by other insurance types (Tricare, etc.)	200	91.3%
All insurance types listed	113	48.9%

Source: Data collected by the 2012 IKK Clinic Survey.

Private-sector clinics that offer immunizations to children were concentrated predominantly in urban areas in the eastern half of Kansas, leaving large portions of the western half of the state without immunization services from private-sector providers (Figure 3, page 10). The counties lacking private-sector immunization services are all rural counties with population densities of fewer than 20 people per square mile; 20 of the 43 counties had fewer than 200 children age 0–5 in residence. In total, more than 11,000 Kansas children age 0–5 reside in counties where no private-sector provider offers immunizations.

Figure 3. **Distribution of Private-Sector Immunizing Clinics, 2012**



Source: Data collected by the 2012 IKK Clinic Survey.

DISCUSSION

Compared to previous studies, this study found increased numbers of clinics offering primary care and immunization services to Kansas children. It is not certain whether the differences represent real increases in the number of clinics or are the result of more comprehensive methodology and efforts to identify private clinics. Even with the increased numbers, a substantial number of Kansas counties have no private clinics offering childhood immunizations. Referral of children from their medical home to the local health department for immunizations has the potential to disrupt continuity of care and may result in inconvenience for parents that could translate to less timely immunization or failure to obtain recommended immunizations. Although research findings are mixed, some investigators have found that immunization coverage rates were higher among children who received continuous primary care through a medical home (Allred, Irigoyen, Smith).

LIMITATIONS

This study has several limitations. Because there is no mandatory registry or listing of private medical clinics operating in Kansas, the list of clinics identified in this study may not be comprehensive. Although significant effort was invested in compiling and cross-checking provider information from a variety of sources, it is possible that some clinics still may have been omitted from our list. The results presented in this report are based upon self-reported data provided by clinic representatives. No efforts were made to independently verify the responses. Finally, we were unable to obtain completed surveys from some immunizing clinics. Although follow-up efforts were successful in determining whether most non-responding clinics offered primary care and immunization services to children, data on other related topics are incomplete. The degree to which the completed responses are representative of all immunizing clinics is uncertain.

CONCLUSIONS

This study provides an updated snapshot of the private-sector system of childhood immunization in Kansas. While findings suggest that the overall number of immunizing clinics has increased slightly since the last study conducted in 2009, significant portions of rural Kansas have no private clinics that offer childhood immunizations. In these counties, more than 11,000 children receive their immunizations through their local health departments. In counties where

private clinics do offer immunizations to privately insured patients, many of those same clinics do not immunize children who are insured by the HealthWave program, and those children are also referred to the health departments.

Providers have many reasons for choosing not to offer immunizations to their young patients. Especially in rural locations where the number of children seen in a practice is small, the costs of maintaining vaccine inventories and current immunization expertise, coupled with increasingly complex schedules of vaccine recommendations, may be significant factors in provider decisions to not offer immunizations.

Although all local health departments offer childhood immunizations and view immunization as an important aspect of their provision of preventive services, referral of a child from his/her primary care physician to the health department for immunization may result in loss of continuity in the child's care and create additional inconvenience and time burden for the child's parent, who must schedule and complete an additional clinic visit to obtain the child's immunizations. For some parents and children, this inconvenience may result in failure to obtain all recommended immunizations in a timely fashion.

APPENDIX A
IMMUNIZE KANSAS KIDS 2012 CLINIC QUESTIONNAIRE

IMMUNIZE KANSAS KIDS

Immunize Kansas Kids Clinic Questionnaire, 2012

Please mail or fax completed questionnaire to:

Immunize Kansas Kids – KHI
212 SW Eighth Avenue, Suite 300
Topeka, KS 66603-3936
FAX (785) 233-1168

If you prefer to complete an on-line version of the survey, go to: **http://tinyurl.com/ImmunizeKS**

Contact Barbara LaClair at the Kansas Health Institute, (785) 233-5443, if you have any questions.
Thank You!

A. Clinic/Practice Information

1. Please complete the following information for your clinic/practice:

Clinic/practice name:_____
Address: _____
City: _____Zip: _____ County: _____
Telephone: _(____)_____
Name of the person completing this survey: _____
Email:_____ Best time to contact by phone : _____ AM/PM

2. Does your clinic/practice offer primary care services to children *at this location*?
(Circle response letter)

A.	Yes	
B.	No	**If "NO," STOP HERE AND RETURN SURVEY TO KHI**

3. How many physicians offer primary care services to children ***at this clinic location***?
_____

4. Approximately how many pediatric patient visits does your practice have in a week ***at this location***?
□ 1-10 □ 11-25 □ 26-50 □ 51-75 □ More than 75

5. Is your clinic primarily: □ Pediatric □ Family Practice □ Other _____

6. Is your clinic/practice part of a larger health care organization or system (umbrella organization)? *(Circle response letter)*

A.	Yes	***If "YES,"*** *please name the organization:*
B.	No	

B. Immunization Practices

7. Does your clinic/practice offer immunization services to children 0 to 5 years of age ***at this location***? *(Circle response letter)*

A.	Yes	
B.	No	***If "NO," STOP HERE AND RETURN SURVEY TO KHI***

8. Do you offer immunization services to children with each of the following types of health insurance?

Insurance Plan	Yes	No
Private Insurance		
HealthWave 19 (Medicaid)		
HealthWave 21 (CHIP)		
Medicaid (Traditional Medicaid)		
Uninsured		
Other (Tricare, etc.)		

9. Approximately what % of your pediatric patients are referred to the Local Health Department for immunizations?

□ None □ 1-25% □ 26-50% □ 51-75% □ 76-99% □ All (100%)

C. Vaccines for Children (VFC) Program

10. Does your clinic/practice currently participate in the Vaccines for Children program? *(Circle response letter)*

A.	Yes	***If "YES," SKIP*** *to Question 11.*
B.	No	

10.b. If you do not participate in VFC, please check your reasons for not participating *(check all that apply):*

- ☐ We are not aware of the VFC program
- ☐ Administrative burden
- ☐ Reimbursement for vaccine administration is too low
- ☐ VFC requires a separate vaccine inventory
- ☐ Our practice does not accept Medicaid patients
- ☐ Our practice does not serve a sufficient number of VFC-eligible children (*Under age 19, Medicaid eligible, uninsured, underinsured, or American Indian/Alaskan Native)*
- ☐ We refer our VFC-eligible clients to the health department
- ☐ Other (Please specify) _____

D. Record Keeping

11. Does your clinic/practice use an electronic medical record (EMR/EHR) system? *(Circle response letter)*

A.	Yes	
B.	No	***If "NO," SKIP** to Question 12*

11. a. **If YES**, which electronic record system does your clinic use? *(Circle response letter)*

A.	Alteer	T.	MedicWare (Clinix)
B.	Amazing Charts	U.	Medisoft
C.	AMICO	V.	Medisource
D.	ASK	W.	Meditech
E.	Athena	X.	Misys
F.	CPSI	Y.	NextGen
G.	Doc's Inc	Z.	Nightengale
H.	E-Clinical	AA.	Novell
I.	EHS	BB.	OCS
K.	Elite Medical Services	CC.	Office Practicum (Connexin Software, Inc)
L.	e-MDs	DD.	Practice Partner
M.	encounterPRO	EE.	Professional Data Services (PDS)
N.	Epic	FF.	Resource & Patient Mgmt System (RPMS)
O.	Gateway Medical Systems	GG.	Rogers and Sisco
P.	GE Centricity	HH.	Sage (Medical Manager)
Q.	Infinite Campus/ Computer Information Concepts	II.	Other: (please list)
R.	KIPHS		
S.	Lytec		

11.b. Which of the following functions are used in your electronic record system?
(check all that apply)

□ Billing □ Medical Record □ Immunization Record

E. Immunization Registry, KSWebIZ

12. Does your clinic/practice participate in the Kansas Immunization Registry (KSWebIZ)?
(Circle response letter)

A.	Yes	
B.	No	***If "NO," SKIP** to Question 12.b.*

If YES, WE PARTICIPATE IN KSWebIZ:

12.a.1. How do you enter patient information into the KSWebIZ registry?

□ Electronic entry through clinic's electronic medical record system interface

□ Entry directly into the registry through KSWebIZ interface

12.a.2. What influenced your decision to participate in KSWebIZ? *(check all that apply)*

□ Benefit to public health

□ Transfer of new patient records

□ Availability of management reports and functions

□ Ability to manage vaccine inventory

□ Tracking/ follow-up of patients (i.e., reminders)

□ Other *(please specify)*:_____

12.a.3. Please indicate your level of satisfaction with each of the following aspects of KSWebIZ: *(check the appropriate response for each aspect)*

Registry Aspect	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
User support				
System stability				
Level of effort required to maintain data				
Usefulness of output (e.g., reports)				
OVERALL SATISFACTION				

12.b. <u>If you do not participate in KSWebIZ</u>, why not? *(Check all that apply)*

- ☐ We have never heard of KSWebIZ
- ☐ We have never been contacted about participation
- ☐ Waiting for development of interface to our electronic medical record system
- ☐ Participation benefits are unclear
- ☐ Administrative burden is too high
- ☐ Costs are too high
- ☐ Other (Please specify) _____

12. c. Whether or not you are currently a KSWebIZ participant, please indicate which of the following registry functions would be of value to your clinic if they were available (*check boxes as applicable*):

Registry Function	Not useful	Would use if available	Currently have & use
Patient reminders & recall notices			
Vaccine inventory management			
Vaccine schedule recommendations			
Patient record (i.e. pink card) reports			
Patient education documents			
Statistical reports			
Other: _____			
Other:_____			

F. Maximizing Office-Based Immunization (MOBI) Program

13. Has your office/clinic participated in the Kansas MOBI program run by the Kansas Chapter of the American Academy of Pediatrics (KSAAP)?

☐ Yes (**If "Yes", SKIP** to Question 14) ☐ No

13. a. If you have not participated in MOBI, why not? *(check all that apply)*:

- ☐ We did not know about MOBI
- ☐ Haven't been contacted by MOBI staff
- ☐ No staff time available
- ☐ Not interested
- ☐ Other (please specify) _____

G. Clinic Staff Immunization policies

14. Please indicate your current policy on immunization of patient-care staff for each of the following vaccines:

Vaccine	Neither recommended or required	Recommended, Optional	Mandatory
Hepatitis B			
Influenza			
MMR (or serologic evidence of immunity)			
Varicella (or history of disease or serologic evidence of immunity)			
Tetanus, diphtheria, pertussis (Tdap)			

H. Immunize Kansas Kids (IKK) Mini-Grant Programs

15. Is your clinic staff aware that the IKK initiative is making mini-grants available to vaccine providers to support quality improvement projects and community coalitions related to childhood immunization efforts?

□ Yes □ No

I. Interests in Additional Information

16. Would you like to receive additional information about any of the following?
(check all that apply)

□ IKK Quality Improvement and Community Coalition grants

□ KSWebIZ Immunization Registry

□ Maximizing Office Based Immunizations (MOBI) program

□ Vaccines for Children (VFC) program

Thank you for your time in completing this questionnaire.
Please mail or fax the completed survey per the instructions on page 1.

APPENDIX B
COUNTY-LEVEL INFORMATION

	County Demographics			Number of Private Clinics			
County	Population Density, 2010	Children Age 0–5, 2010	Births, 2011	Primary Care to Children	Immunizing Children	Participate in VFC	Participate in WebIZ
Allen	Semi-urban	880	153	3	3	3	2
Anderson	Rural	563	108	1	1	1	1
Atchison	Semi-urban	1,106	212	6	4	2	2
Barber	Rural	307	66	3	1	0	1
Barton	Semi-urban	1,986	379	8	4	3	4
Bourbon	Semi-urban	1,120	205	2	2	1	1
Brown	Rural	725	161	6	5	4	4
Butler	Semi-urban	4,367	725	11	10	7	5
Chase	Rural	151	23	1	1	0	1
Chautauqua	Rural	178	38	2	0	0	0
Cherokee	Semi-urban	1,398	254	6	2	2	0
Cheyenne	Rural	140	34	1	0	0	0
Clark	Rural	145	22	2	0	1	0
Clay	Rural	579	106	1	0	0	0
Cloud	Rural	619	107	4	0	1	0
Coffey	Rural	491	77	5	1	0	0
Comanche	Rural	100	31	1	0	0	0
Cowley	Semi-urban	2,459	467	9	7	3	5
Crawford	Semi-urban	2,486	508	13	6	2	2
Decatur	Rural	150	31	1	0	0	0
Dickinson	Semi-urban	1,286	240	4	1	0	0
Doniphan	Semi-urban	453	83	3	2	1	2
Douglas	Urban	6,209	1,216	16	12	5	4
Edwards	Rural	180	29	3	0	0	1
Elk	Rural	171	17	1	0	0	0
Ellis	Semi-urban	1,847	408	6	5	4	5
Ellsworth	Rural	343	69	1	0	0	0
Finney	Semi-urban	3,532	721	6	2	1	2
Ford	Semi-urban	3,254	700	7	4	1	1
Franklin	Semi-urban	1,851	304	2	1	0	2
Geary	Semi-urban	3,814	930	6	4	3	2
Gove	Rural	180	35	1	0	0	0
Graham	Rural	144	25	1	0	0	0
Grant	Rural	705	127	4	2	2	0
Gray	Rural	508	87	3	1	1	1
Greeley	Rural	81	19	1	0	0	1

	County Demographics			Number of Private Clinics			
County	Population Density, 2010	Children Age 0–5, 2010	Births, 2011	Primary Care to Children	Immunizing Children	Participate in VFC	Participate in WebIZ
Greenwood	Rural	398	65	2	0	0	0
Hamilton	Rural	253	43	0	0	0	0
Harper	Rural	406	68	3	0	0	0
Harvey	Semi-urban	2,371	428	8	7	2	4
Haskell	Rural	345	52	2	0	0	0
Hodgeman	Rural	114	21	1	0	0	0
Jackson	Semi-urban	906	156	5	5	3	5
Jefferson	Semi-urban	1,097	172	8	8	1	2
Jewell	Rural	149	19	1	0	0	0
Johnson	Urban	39,180	7,355	83	60	12	9
Kearny	Rural	309	62	1	0	0	0
Kingman	Rural	457	71	5	4	2	3
Kiowa	Rural	132	38	1	0	0	0
Labette	Semi-urban	1,498	243	10	7	7	6
Lane	Rural	86	22	1	0	0	0
Leavenworth	Urban	5,187	967	12	9	5	7
Lincoln	Rural	209	38	1	0	0	0
Linn	Rural	539	101	3	3	1	1
Logan	Rural	151	36	1	0	0	0
Lyon	Semi-urban	2,344	420	5	5	1	1
Marion	Rural	677	112	4	3	1	1
Marshall	Rural	655	114	5	1	1	1
McPherson	Semi-urban	1,818	347	10	3	1	1
Meade	Rural	340	72	5	0	0	0
Miami	Semi-urban	2,140	380	6	5	1	1
Mitchell	Rural	378	84	2	0	0	0
Montgomery	Semi-urban	2,437	457	11	6	6	3
Morris	Rural	307	64	1	1	1	1
Morton	Rural	214	39	1	0	0	0
Nemaha	Rural	663	125	6	3	1	1
Neosho	Semi-urban	1,137	214	5	5	3	1
Ness	Rural	168	28	3	3	2	2
Norton	Rural	282	49	1	0	0	0
Osage	Semi-urban	1,015	184	2	2	0	0
Osborne	Rural	209	39	3	0	1	1
Ottawa	Rural	350	46	3	0	0	0
Pawnee	Rural	385	75	3	0	0	0
Phillips	Rural	349	50	2	0	0	0

	County Demographics			Number of Private Clinics			
County	Population Density, 2010	Children Age 0–5, 2010	Births, 2011	Primary Care to Children	Immunizing Children	Participate in VFC	Participate in WebIZ
Pottawatomie	Semi-urban	1,836	354	6	4	1	3
Pratt	Rural	639	164	1	0	0	0
Rawlins	Rural	130	15	1	0	0	0
Reno	Semi-urban	4,254	759	2	2	1	1
Republic	Rural	253	46	2	0	0	0
Rice	Rural	626	119	3	2	1	2
Riley	Semi-urban	4,835	1,119	8	4	2	0
Rooks	Rural	325	63	2	2	2	2
Rush	Rural	161	26	0	0	0	0
Russell	Rural	398	85	3	2	2	2
Saline	Semi-urban	4,005	756	7	4	4	5
Scott	Rural	375	76	1	0	0	0
Sedgwick	Urban	39,302	7,818	78	72	42	31
Seward	Semi-urban	2,301	451	5	3	3	3
Shawnee	Urban	12,396	2,464	23	18	8	9
Sheridan	Rural	171	31	1	0	0	1
Sherman	Rural	400	72	2	1	1	1
Smith	Rural	189	27	2	1	2	1
Stafford	Rural	252	45	1	0	0	0
Stanton	Rural	183	29	4	3	0	2
Stevens	Rural	485	84	1	0	0	0
Sumner	Semi-urban	1,608	263	7	3	1	2
Thomas	Rural	518	99	2	1	1	1
Trego	Rural	135	27	2	1	1	1
Wabaunsee	Rural	465	83	1	1	0	0
Wallace	Rural	82	18	1	0	0	0
Washington	Rural	339	61	3	0	0	0
Wichita	Rural	165	23	1	0	0	0
Wilson	Rural	611	114	6	4	2	3
Woodson	Rural	178	31	1	1	1	1
Wyandotte	Urban	13,712	2,732	19	17	13	11
Kansas		205,492	39,627	573	367	188	182

**The number of clinics participating in the VFC program and the KSWEbIZ registry are based upon lists provided by KDHE, and may differ slightly from what clinics reported in the survey.*

Source: Population density and counts of children under 5 years of age from the 2010 U.S. Decennial Census, Population density categories derived from population per square mile from the 2010 U.S. Census and categories defined by KDHE, number of births from the KDHE Bureau of Epidemiology and Public Health Informatics, numbers of primary care and immunizing clinics from the 2012 IKK Clinic Survey, numbers of VFC and KSWebIZ participants from the KDHE Immunization Program.

APPENDIX C
RELATED PRACTICES AND ATTITUDES OF IMMUNIZING CLINICS

In addition to the primary study questions about the provision of primary care and immunization services, survey respondents were asked a series of additional questions related to their immunization practices. Results are summarized below.

USE OF ELECTRONIC HEALTH RECORDS

The use of electronic health information systems to manage administrative and patient medical information has become widespread in recent years. The systems offer clinics efficiencies in billing, record-keeping and sharing of patient information between authorized practitioners. The increasing use of electronic health records (EHR) systems has resulted in a diverse array of vendors marketing EHR systems and similar diversity in practitioner choice of systems. This diversity has created challenges for the Kansas Department of Health and Environment as they have implemented the Kansas statewide immunization registry system, KSWebIZ. The KSWebIZ system can be electronically interfaced with clinic's EHR systems to allow automatic transfer of immunization information, but customized interfaces must be developed for each vendor system that is to be interfaced. Without an electronic interface, providers potentially face redundant data entry and the added burdens of learning and operating two separate information systems.

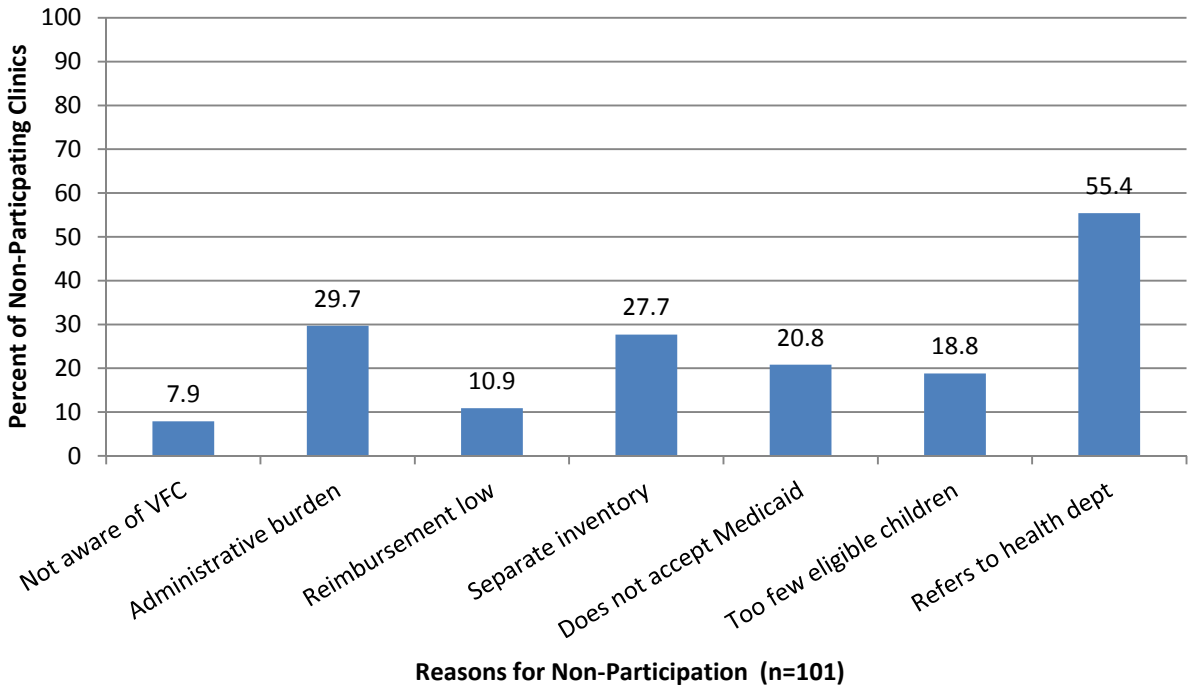
A substantial majority (80.5 percent) of responding clinics indicated that they currently use an EHR system in their practice. In terms of the specific systems in use, substantial diversity was found, with 37 systems identified. Systems most widely used were NextGen (28 clinics), Practice Partner (23 clinics), e-MDs (22 clinics), E-Clinical (21 clinics), GE Centricity (seven clinics) and Amazing Charts (six clinics). All other reported systems were in use by five or fewer clinics. Of the 186 clinics that reported using an electronic records system, 140 (78 percent) said that they used the system for billing, 176 (95 percent) for maintaining medical records and 162 (87 percent) for keeping track of immunization information.

PARTICIPATION IN THE VFC PROGRAM

Vaccines for Children (VFC) is a federally sponsored program that provides free vaccines to children who might otherwise not be vaccinated because of inability to pay. Under this program, the Centers for Disease Control and Prevention purchases vaccines and distributes them to grantees (state health departments and certain local and territorial public health agencies), which in turn distribute them at no charge to participating private physicians' offices and public health clinics. Children who are under age 19 and are Medicaid-eligible, uninsured, underinsured or American Indian/Alaskan Native are eligible to receive vaccines through the VFC program.

Historically, VFC participation has been low among private providers in Kansas (LeBaron 2002). Slightly more than half (56 percent) of the immunizing clinics responding to this survey reported that they currently participate in the VFC program. This result compares to 56 percent of clinics in 2009 and 51 percent in 2006. The proportion of immunizing clinics that participate in the VFC program was slightly higher in rural and semi-urban counties compared with urban clinics, but the difference was not statistically significant. Clinics that were not current VFC participants were asked to identify their reasons for not participating. Results are shown in Figure C-1 (page C-3). Clinics that participated in the VFC program were significantly less likely to refer their pediatric patients to the health department for immunization than non-participating clinics ($p<0.001$).

Figure C-1. **Reasons Cited for Not Participating in VFC Program**



Respondents were asked to check all reasons that applied. Percentages add to greater than 100.
Source: Data collected by the 2012 IKK Clinic Survey.

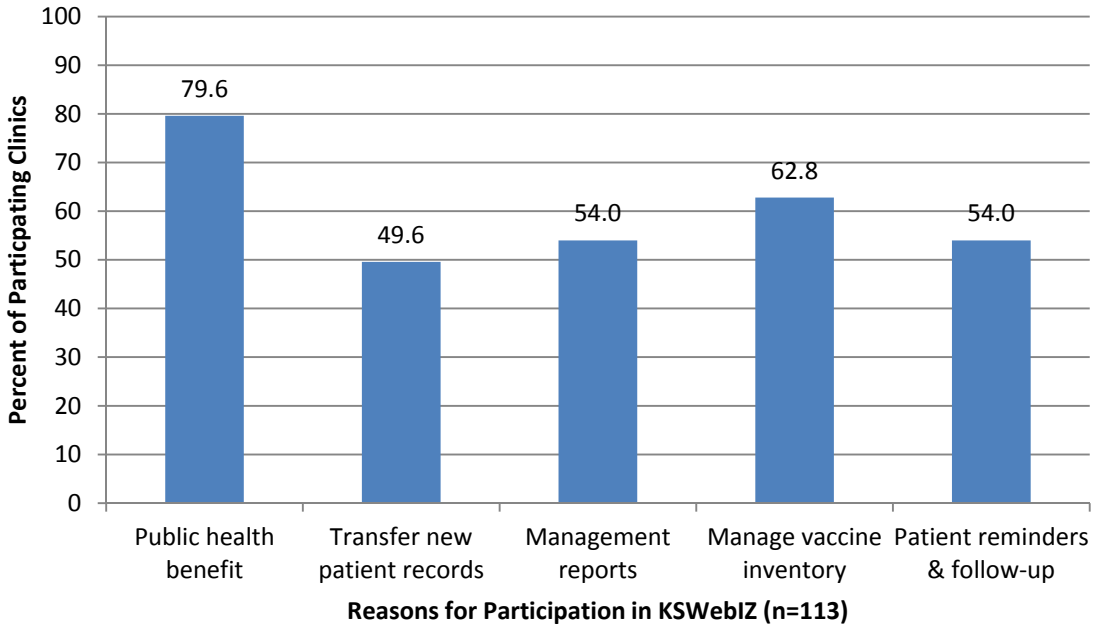
Participation in the KSWebIZ Immunization Registry

KSWebIZ is the statewide immunization registry for Kansas. It is an Internet-based, centralized database that maintains immunization records for all Kansas residents, from birth to death. The purpose of the immunization registry is to coordinate immunization information among health care professionals and enable monitoring of immunization levels in the population. Widespread provider enrollment and participation in KSWebIZ is necessary in order to gather complete immunization data for individuals and to provide reliable estimates of immunization rates.

Survey respondents were asked a series of questions about their participation in the KSWebIZ registry and their perceptions related to the system. Slightly less than half (113 clinics, 48.7 percent) of the responding clinics indicated that they currently participate in the KSWebIZ registry. Only 10 of those current participants access the KSWebIZ system through an electronic interface to their clinic's EHR system. The remaining 90 percent enter and retrieve data directly

through the KSWebIZ user interface. Current users were asked their reasons for participation and about their satisfaction with the system. Reasons cited by responding clinics for their participation in the registry are shown in Figure C-2.

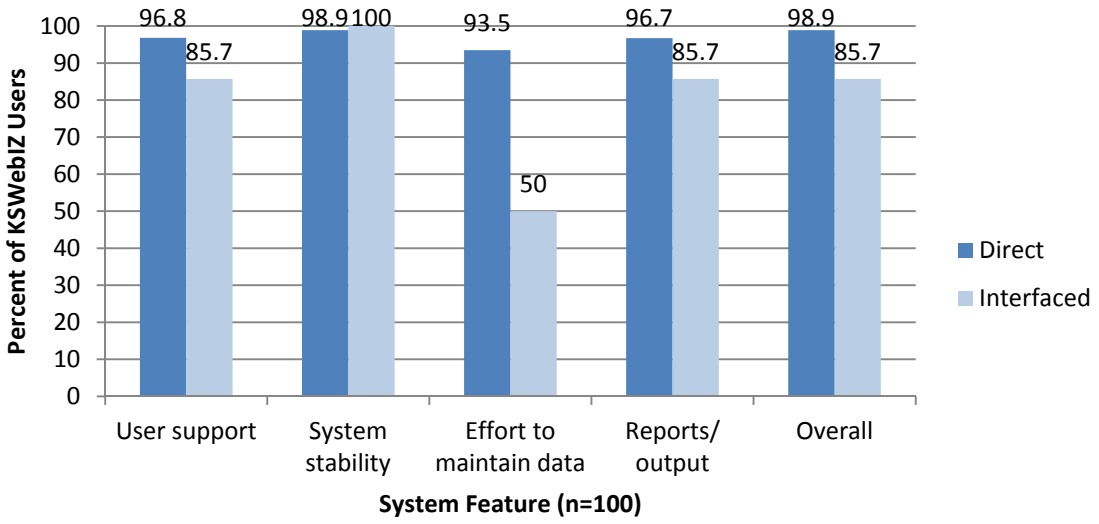
Figure C-2. **Reasons Clinics Participate in the KSWebIZ Registry**



Respondents were asked to check all reasons that applied. Percentages add to greater than 100.
Source: Data collected by the 2012 IKK Clinic Survey.

Current KSWebIZ users were asked about their satisfaction with several aspects of the system. Results are displayed separately (Figure C-3, page C-5) for users of electronic interface and users of direct data entry, because the system functions somewhat differently and offers different reporting capabilities for each method. Overall, users of KSWebIZ expressed satisfaction with the system, although EHR-interfaced users tended to be slightly less positive than those who used the KSWebIZ interface directly. Because of the small number (n=7) of electronic interface users who responded to these questions, their results should be interpreted with caution.

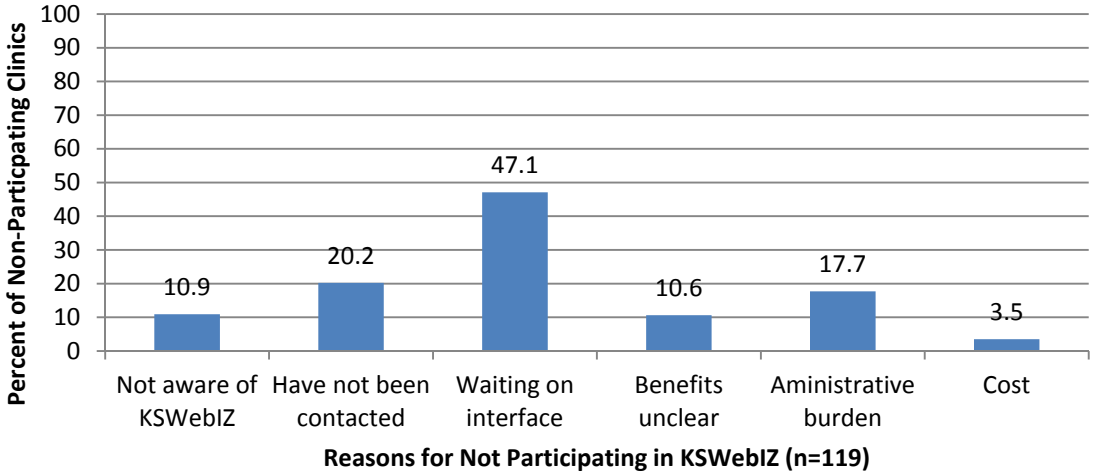
Figure C-3. **User Satisfaction with the KSWebIZ Immunization Registry**



Source: Data collected by the 2012 IKK Clinic Survey.

Clinics not using the KSWebIZ system were asked about their reasons for non-participation. Results are shown in Figure C-4. The reason cited most frequently was that clinics were waiting for interfaces to be made available for linking the immunization registry with their electronic health records systems.

Figure C-4. **Reasons for Non-Participation in the KSWebIZ Registry**

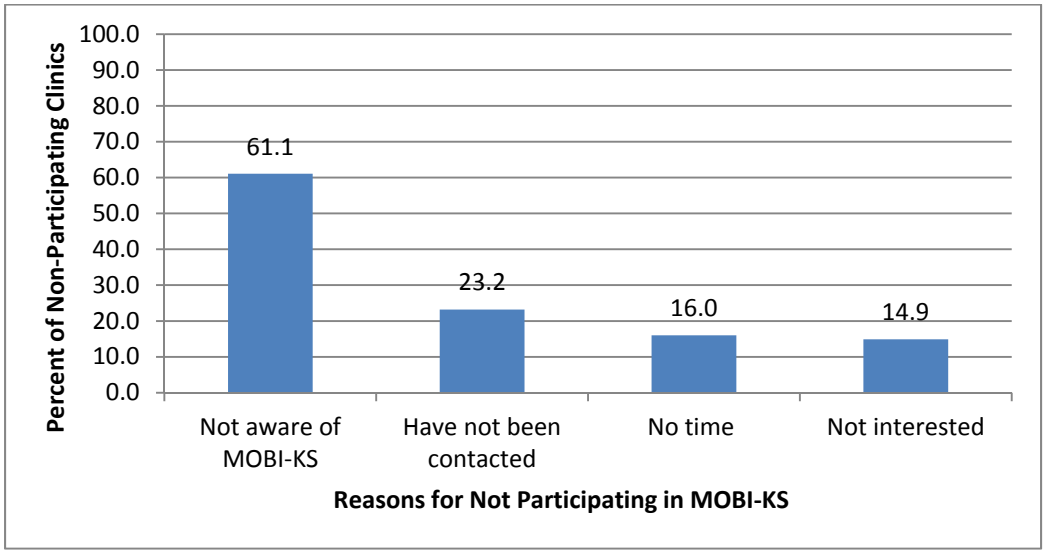


Respondents were asked to check all reasons that applied. Percentages add to greater than 100.
Source: Data collected by the 2012 IKK Clinic Survey.

Participation in the MOBI-KS Program

The MOBI-KS program offers free one-hour presentations to staff members at immunizing clinics in Kansas. The goal of the program is to improve immunization rates in Kansas by offering tailored suggestions for ways that providers might improve their immunization practices. The program has been operating in Kansas since 2007 and is administered by the Kansas Chapter of the American Academy of Pediatrics, with funding support from Immunize Kansas Kids (IKK) and the Kansas Department of Health and Environment. Survey respondents were asked whether they had participated in the MOBI-KS program and if not, why not. Forty-four (44) responding clinics reported that they had previously participated in the MOBI-KS program. Reasons for non-participation among the remaining 181 clinics are displayed in Figure C-5.

Figure C-5. **Reasons Clinics Have Not Participated in MOBI-KS**



Respondents were asked to check all reasons that applied. Percentages add to greater than 100.
Source: Data collected by the 2012 IKK Clinic Survey.

Immunization of Health Care Workers

Ensuring that health care providers are immunized against vaccine-preventable diseases is one way to prevent the spread of contagious diseases and protect children who are not yet fully immunized. Survey respondents were asked about their organization's policies regarding immunization of direct care employees. Results are shown in Table C-1.

Table C-1. **Health Care Worker Immunization Policies in Primary Care Clinics**

Vaccine	Neither Recommended nor Required	Recommended, Optional	Mandatory
Hepatitis B (n=222)	3.2%	31.5%	65.3%
Influenza (n-224)	2.2%	65.2%	32.6%
Measles, Mumps, Rubella (MMR), or serologic evidence of immunity (n=218)	13.8%	39.9%	46.3%
Varicella, or history of disease or serologic evidence (n=209)	15.3%	42.6%	42.1%
Tetanus, diphtheria, pertussis (Tdap) (n=223)	7.2%	42.6%	50.2%

Source: Data collected by the 2012 IKK Clinic Survey.

Awareness of IKK Mini-Grants

Survey respondents were asked whether they were aware that IKK offers mini-grants for community coalitions and quality improvement projects to improve childhood immunization rates in Kansas. Fewer than one in five (18 percent) of respondents indicated that they were aware of the IKK grants.

Requests for Additional Information

At the conclusion of the survey, respondents were asked to indicate their interests in receiving additional information about VFC participation, KSWebIZ, MOBI-KS or the IKK mini-grants**.** A substantial number indicated interest in receiving more information about one or more of the programs. Numbers of requests are shown in Table C-2.

Table C-2. **Requests for Additional Information on Immunization Programs**

Program	Number of Requests	Percent of Respondents
IKK Mini-Grants	88	37.8%
KSWebIZ	44	18.9%
MOBI-KS	66	28.3%
VFC	15	6.4%

Source: Data collected by the 2012 IKK Clinic Survey.

APPENDIX D: REFERENCES

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