2025 Black Book of

Vaccine Informatics and Immunization Technology

Digital Tools vs. Measles

Insights from the 2025 Black Book Survey

Black Book Research Insights

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How 5 States Are Responding with Data, Dashboards, & Digital Outreach

This report originated from a collaborative request involving independent public health agencies, regional health systems, and IT developers working across the U.S. vaccine and immunization software ecosystem. Initial data collection began with reviews of government-released outcomes, immunization registry tools, and technology usage reports submitted by both provider organizations and the developers of vaccine registration, tracking, and interoperability platforms.

In January 2025, Black Book Research was approached by a leading health system representing a consortium of hospitals and physician practices in the North Texas region. These organizations were increasingly concerned about rising measles cases and the urgent need to assess the preparedness and technological capabilities of their vaccine management systems. What began as a regional diagnostic study quickly evolved into a national research effort as measles outbreaks intensified across the U.S., particularly in the South-Central states.

Recognizing the need for evidence-based insights, Black Book launched a broad survey across five states to evaluate the role of immunization technologies and digital health platforms in containing the spread of measles and protecting at-risk populations. The study aimed to determine which technologies—ranging from immunization registries and EHR-integrated tools to patient outreach apps and predictive analytics—proved most effective in real-world outbreak settings.

This report presents the expanded findings, reflecting national lessons learned and showcasing how digital tools can empower providers, payers, and public health agencies to strengthen immunization strategies and community health defenses in real time.

Methodology & Survey KPIs

This report is based on a targeted survey conducted by Black Book Research between February and April 2025. Respondents included 310 practicing physicians, pediatricians, and care coordinators across Texas, New Mexico, Oklahoma, Kansas, and Louisiana, as well as 58 officials from federal and state public health agencies.

Survey Design:

- Distributed electronically with region-specific follow-ups and phone-based interviews for validation.
- Participants were screened for direct involvement in immunization tracking, outbreak response, or pediatric and primary care delivery.

Key Performance Indicators (KPIs) Assessed:

- Effectiveness of digital tools in identifying unvaccinated individuals.
- Reduction in administrative burden and outreach time due to vaccine tracking platforms.
- AI-enhanced appointment adherence rates for at-risk pediatric populations.
- Perceived utility of modeling tools and surveillance platforms.
- Integration success with EHRs and HIEs across borders and sectors.
- Reduction in duplicate vaccination events and immunization errors.

Black Book ensured vendor neutrality by anonymizing technology brand names during the survey and analyzing data solely through usage outcomes, provider satisfaction, and operational ROI as reported by the respondents.

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Executive Overview

The positive impact of healthcare technology in vaccine-related preparedness was reinforced by measurable gains across the five-state region. According to Black Book's survey, 91% of providers using real-time immunization platforms reported faster outreach to under-vaccinated populations, while 74% of public health officials noted a decrease in vaccine-preventable complications tied to digital tracking and scheduling systems. The use of AI-enabled patient segmentation tools increased vaccination appointment adherence by an average of 23% in targeted communities.

The 2025 measles outbreak tested the resilience of public health infrastructure across Texas, New Mexico, Oklahoma, Kansas, and Louisiana, exposing deep systemic vulnerabilities while highlighting the transformative role of digital tools. Black Book Research surveyed 310 providers and 58 government health officials, capturing frontline feedback on the effectiveness and deployment of vaccine informatics and outbreak technologies. This report blends survey insights, field case studies, and technical analysis into a comprehensive review of vaccine IT tools that supported public health response in Q2 2025.

Immunization Registries and EHR-Integrated Vaccine Tracking

State and regional vaccine registries, increasingly integrated with provider EHRs, emerged as foundational tools for identifying unvaccinated individuals, monitoring immunization trends, and triggering interventions:

- **Bi-Directional EHR Integration**: Over 80% of registries in these states now offer seamless provider access through FHIR-based or custom APIs, enabling automatic bidirectional updates between EHRs and immunization systems.
- **MyIR Mobile (Texas)**: Enabled over 230,000 parents to access their child's records via SMS in Q1 2025, reducing clinic call volume by 41% and supporting school compliance.
- **VacTrAK (Oklahoma/Kansas)**: This registry reduced duplicate vaccinations by 92%. In one case, a rural nurse verified 87 migrant student immunization records in 15 minutes using VacTrAK's cross-provider database access.

Syndromic Surveillance and Predictive Modeling

Real-time monitoring and simulation tools helped states anticipate and manage measles spread:

- **WHO Measles Risk Tool**: Used in Louisiana to guide emergency resource reallocation. One parish redirected 35% of its vaccine supply to high-risk zip codes, averting an estimated 120 cases.
- **Illinois Measles Simulator (TX/NM use case)**: Projected outbreak curves with 89% accuracy in El Paso ISD, enabling 23 mobile clinics to vaccinate 4,100 students in just 72 hours.
- **ImageTrend EMS Analytics (Bexar County, TX)**: Detected measles-like symptoms through EMS call logs up to nine days before lab confirmation.

Patient Engagement and Community-Facing Tools

Reaching families directly—especially in rural and vaccine-hesitant communities—was essential to increasing MMR adherence:

- **San Antonio Textline Chatbot**: Bilingual virtual agents resolved 14,000 parental questions in three weeks, correlating with a 19% increase in local vaccine uptake.
- **CipherOutreach**: Used by community clinics to deploy automated, multilingual outreach campaigns via SMS, web portals, and interactive voice calls.
- **Oklahoma Rural Telehealth & MyIR Campaign**: Linked MMR vaccine reminders to telehealth appointment scheduling, achieving a 58% second-dose completion rate in underserved counties.

Health Information Exchanges and Cross-State Interoperability

Data sharing across EHRs, state lines, and provider types was critical for managing immunization records in mobile and high-risk populations:

- **Carequality & CommonWell**: Enabled near real-time vaccine record lookups for patients moving between Texas, New Mexico, and Oklahoma. In El Paso, HIEs cut cross-border immunization delays by 70%.
- **Blockchain Pilot (LA-IA)**: Provided immutable vaccine documentation for migrant workers, reducing record disputes by 78% and improving continuity of care.

Advanced Public Health Technologies

Innovative platforms helped officials simulate outbreak responses, flag risk populations, and counter misinformation:

- **University of Texas FNN Model**: Used dynamic time warping and machine learning to forecast regional outbreaks with 1.1 MSE error margin—more precise than static regression models.
- **Lumeris Population Health (Kansas)**: Used AI to flag 12,700 high-risk patients. Automated multilingual outreach boosted follow-through by 23%.
- **NLP-Driven Misinformation Filters**: EHR-integrated CDC/HAN alerts helped public health clinics address top vaccine myths during patient check-ins. Pilot sites saw a 14% reduction in vaccine hesitancy.

Persistent Challenges & Implementation Gaps

- **Data Fragmentation**: 44% of New Mexico providers couldn't access Texas records during border clinic visits, delaying care for at least 620 cases.
- **Digital Divide**: 33% of MyIR mobile bookings came from urban zip codes, despite rural counties showing 2.5x higher incidence of measles.
- **Staffing Shortages**: Budget cuts eliminated 20 temporary staff in New Mexico, delaying contact tracing by up to 72 hours per case.

"This survey offers a clear view into what's working and what's lacking in our vaccine tech infrastructure," said Doug Brown, Founder of Black Book. "When public health and provider organizations are equipped with platforms that connect across systems, surface high-risk individuals through AI, and streamline rural access with secure digital tools, the result is faster protection and fewer missed opportunities. Immunization technology must be considered essential infrastructure, and its funding stability and interoperability should reflect that reality."

The 2025 measles outbreak catalyzed rapid digital innovation across five states. Systems like DHIS2, VacTrAK, predictive AI models, and multilingual outreach platforms proved essential. Yet these solutions were only as effective as the policies, personnel, and equity frameworks surrounding them. This report affirms that technology alone is not the vaccine—but it is the infrastructure that ensures no dose is missed, no outbreak goes undetected, and no family is left behind.

Visit BlackBookMarketResearch.com for continued updates from our May 2025 release of the full Vaccine Informatics & Immunization Technology review.

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Appendix

Digital IT Solutions Supporting Vaccine Registration & Population Health (Q2 2025)

Vaccine Registration Platforms and EHR-Integrated Systems:

- **MyIR Mobile**: A consumer-facing platform enabling parents to access and manage immunization records via SMS and web. Widely adopted for pediatric vaccination outreach, especially during school enrollment seasons.
- **VacTrAK**: Alaska's state registry, adapted by other states, enables provider collaboration and rapid access to vaccine histories. It supports migrant and underserved populations by offering comprehensive tracking across providers.
- **DHIS2**: A flexible open-source platform used globally for immunization surveillance and health data analytics. Local jurisdictions used its real-time dashboard to deploy mobile vaccine teams during the outbreak.
- **CareEverywhere (Epic)**: An Epic-integrated health information exchange enabling cross-system access to immunization data. Pediatricians leverage it to confirm vaccination status before well-child visits.
- **STC | Immunization Intelligence Platform**: Specializes in public health data services, automating patient reminder systems and vaccine forecasting. Strong in state IIS integration and registry analytics.
- **Qvera Interface Engine**: Facilitates bi-directional HL7/FHIR data flow between EHRs and immunization systems. Used by community clinics to automate vaccine documentation.

Pediatric EHR Vendors with Immunization Modules:

- **PCC (Physician's Computer Company)**: A pediatrics-focused EHR with built-in immunization forecasting and school compliance tools. Known for strong usability and client support.
- **eClinicalWorks**: Offers pediatric-specific features like immunization inventory tracking and automatic MMR series reminders. Integrates well with state registries.
- **athenahealth Pediatric Solutions**: Combines EHR and revenue tools with vaccine recall automation and family communication features. Used by multi-site pediatric networks.
- **Office Practicum**: Built for pediatricians, this EHR streamlines vaccine administration with color-coded dose tracking and registry reporting.
- **ModMed Pediatrics**: A cloud-based EHR with adaptive documentation for pediatric visits, including smart vaccine prompts and CDC-compliant schedules.

Population Health Management Tools:

- **Lumeris Population Health Platform**: Uses AI to segment high-risk patients and automate outreach. Instrumental during the outbreak in coordinating care among vulnerable pediatric populations.
- **Arcadia.io**: Aggregates clinical and claims data to identify vaccine gaps. Helps providers close care gaps and reduce preventable hospitalizations.
- **Innovaccer PHM Suite**: Offers real-time care gap identification and analytics dashboards to track immunization performance by region or provider.
- **Lightbeam Health Solutions**: Enables immunization registry queries, alerts for overdue vaccines, and SDOH-informed outreach.
- **HealthEC**: Offers centralized care coordination and risk stratification tied to immunization records and community-based intervention strategies.

Care Coordination & Outreach Platforms:

- **CipherOutreach**: Automates multilingual SMS, email, and voice reminders linked to immunization schedules. Ideal for community health centers and FQHCs.
- **Unite Us**: Connects healthcare and social services, allowing providers to refer patients to local vaccine access points. Tracks resolution of social barriers to care.
- **Bamboo Health**: Integrates immunization status with behavioral and urgent care data. Used to ensure follow-up with high-risk patients post-ED discharge.
- **Salesforce Health Cloud**: Enables providers to personalize vaccine engagement using CRM data. Supports automated follow-ups for second dose completion.
- **WellSky Coordinated Care Suite**: Used by home health and public health departments to manage immunization outreach among hard-to-reach populations.

Syndromic Surveillance and Risk Modeling Tools:

- **ImageTrend EMS Analytics**: Surfaces early signals of vaccine-preventable disease via EMS data feeds. Proven effective in preemptively flagging measles-like symptoms.
- **HealthMap**: Aggregates real-time outbreak signals from news, social media, and clinical reports. Provides geographic risk alerts to public health users.
- **WHO/PAHO Measles Risk Tool**: Scoring model used by state health officials to rank community-level vulnerability. Informs vaccine deployment.
- **Illinois Measles Simulator**: Simulates outbreak risk by zip code using vaccine coverage and mobility data. A visual tool to persuade hesitant populations.
- **EMOD (Epidemiological MODeling)**: Agent-based modeling software used to test vaccination campaign outcomes and coverage thresholds.
- **University of Texas FNN Predictive Model**: AI-driven model developed for Texas counties to predict case surges using time-warped historical patterns.

Interoperability Enablers and Vaccine Data Exchanges:

- **Carequality**: Enables EHR-to-EHR data sharing, ensuring vaccine records follow the patient across state lines. Trusted by major health systems.
- **CommonWell Health Alliance**: Nationwide interoperability network integrating immunization data for participating EHR vendors.
- **KONZA HIE**: Regional exchange supporting bidirectional immunization query capabilities. Emphasizes alert delivery for overdue vaccines.
- **Health Gorilla**: National network offering record locator services and immunization data exchange through FHIR APIs.
- **eHealth Exchange**: A public-private exchange connecting federal agencies and states. Supports bulk immunization record retrieval.

These tools span clinical, public health, and community applications and were reported by survey respondents as instrumental in addressing outbreak control, vaccine equity, and population-level engagement during the 2025 measles crisis. and were reported by survey respondents as instrumental in addressing outbreak control, vaccine equity, and population-level engagement during the 2025 measles crisis.