CITE Systems

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CITE Systems Research and Results

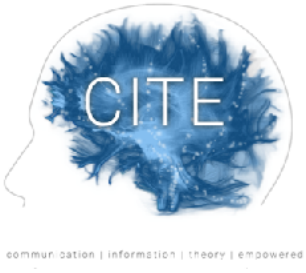
CITE Solutions means:

Solution to complete population coverage (Civil Rights/Bill of Rights)
A better healthcare experience for staff and patients
Improved economics

GeaCom's Communication & Information Technology Empowered (CITE) Systems, consisting of medical grade CITE technology utilizing the totally differentiated CITE methodology, enable new levels of engagement, accuracy and performance in vital medical services. CITE's breakthrough, strongly supported in scientific research, offers an opportunity for reinvention of processes to yield significantly improved outcomes for patient, staff and system performance.

CITE empowers healthcare systems to employ the modern, value-based journey solution to effectively achieve longstanding goals:

1. Normalizing the patient population
2. Standardizing staff competency, bedside manner and process adherence
3. Expanding functional access to active service areas
4. Coordinating resources (human, infrastructure and technology)
5. Reducing the complexity and burden of multiple modalities
6. Operationalizing and streamlining new processes
7. Empowering rapid, low cost and safe innovation



CITE Systems are the most tested, validated, qualified and capable engagement systems available to medical enterprises today. To this end, through 10 years of research and refinement, CITE has been enhanced and proven effective to:

1. Engage every patient, equally, effectively and accurately throughout their journey.
2. Ensure that each staff member is aware of best practices, at the time of need, and follows established procedure in accordance to resources.
3. Immediately expand the effective engagement and active care zones within facilities.
4. Balance available staff with patient demand while matching traits for improved service.
5. Reduce the amount of "junk data" and focus expert staff on pure, actionable information.
6. Successfully reinvent healthcare models.

If you can: normalize the patient variable, control the flow of patients, engage staff at top of licensure, optimize the use of infrastructure, focus on best practices and services, reduce or eliminate unnecessary points/process; then it follows that you can harmonize patient, staff and system performance. The result is better community health, higher staff functionality, lower cost infrastructure and overall improved performance.

In developing, designing, refining and marketing CITE Systems, GeaCom and its partners have compiled over a decade of medical, technical, human and process research across 5 continents, with multitudes of cultures, millions of interactions and in a wide variety of uses and environments. CITE Systems have been fully vetted and the breakthrough claims validated.

Normalizing the Patient Population

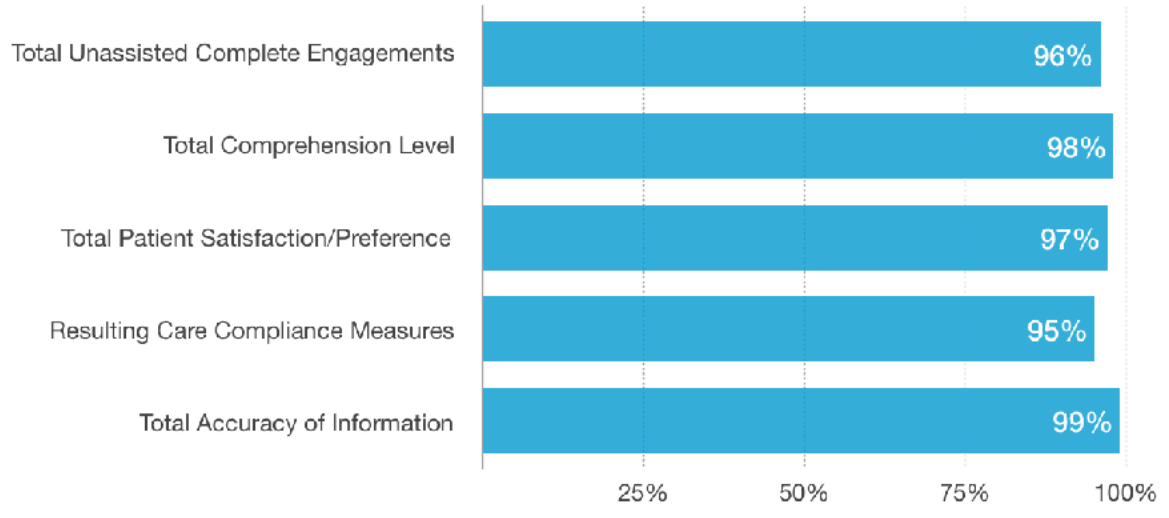
Normalizing the patient population across demographies is the most important breakthrough in terms of equity, efficiency, population health and ethical service. It is also a Constitutional Right in the U.S., Patient Right in Canada, and inalienable right of society. Understanding what the conventional failures are and what “Normalizing” means is best conveyed by reviewing the market research, medical trials and system design. For CITE Systems, here is what has been measured and sought as data:

Measure:	**Nested Findings:**
Unassisted, Complete and Effective Patient Engagement Across Demographies	Honesty of patient information Openness of patient communication Completion of vital requests Comprehension of care plan Satisfaction of medical experience Compliance to care plan

Measure:	**Nested Findings:**
Total Continuity and Quality of Care Across Demographies	Civil Rights/Bill of Rights Population health Error reduction Cost reduction (reduced readmission, engagement requirements, etc)

Results:

The results of patient acceptance, unaided utilization, dissemination of vital information and accuracy are unprecedented. The normalization of patient variables, coupled with an efficient engagement platform for innovation opens new horizons of medical performance potential. The following measures held up across uses cases, departments and stressful environments:



Standardizing Staff Competency and Process Adherence

Staff also is a previously unaccounted for variable in care. From one staff member to another staff member, competency and capability is highly variant. From one day to the next or from shift start to shift finish even individual staff member's performance varies. This unpredictability and variable has been a costly challenge for medical enterprises (and patients) however with CITE Systems there is the first engagement solution that addresses the staff variable.

Notifying staff of all patient status via a method that doesn't conflict with one-on-one engagements is foundational to Information Theory. The ability to ensure that engagements between staff and the patient are more informed, appropriate and effective through the use of Information Theory has undeniable potential. In all CITE engagements here is what is typically measured for the performance of the system in regard to staff effectiveness:

Measure:

Staff Involvement, Competency Enhancement and Process Adherence

Nested Findings:

Foreknowledge of patient
Clarity on procedure
Accountability
Top of licensure performance
Reduction of error
Staff satisfaction
Reduced data entry
Initiative conformance benefits
Innovation support

Results:

The marketplace has a broad and varied process for staff/patient engagement across departments and facilities however there are universals to measure. Reduced data entry, more meaningful time with the patient, less utility load, greater awareness of the patient's state of mind, more realtime cultural competency, foreknowledge of situational process and reduced barrier to open and honest communication.

- ☑ Foreknowledge of patient
- ☑ Accountability of procedure
- ☑ Cultural appropriate knowledge
- ☑ Effective elimination of charting (~80%)
- ☑ Staff awareness of patient need/progress
- ☑ Process adherence
- ☑ Increased "bedside" time
- ☑ Actionable information

The ability to message and coordinate staff in real/relevant time is a new concept that has proven deep potential. The use of this method has ignited innovative ideas from the marketplace and it is anticipated as a growth area for CITE innovation.

Coordination of Infrastructure and Process Improvement

CITE Systems are designed to enhance and improve human engagement in vital interactions and as such have potential to provide the value propositions within existing infrastructure without extensive foundational modification of resources. Proper engaging of patients, coordination with staff and integration institutional resources and infrastructure is a key area of measurement. The ability to coordinate staff and resources also depends on the ability to integrate with record systems, physical spaces and system flow design.

	Nested Findings:
Measure: **Workflow and Throughput Enhancement**	Infrastructure utilization Economic benefits Point solution reduction Cost of training reduction Staff and service accountability benefit Error reduction benefits “Speed to Treat” benefits Data security adherence Infectious disease control standards Fast fail or success of initiatives (innovation trajectory benefits)

Results:

As the only FDA designed and purpose build medical engagement solution in the market, CITE Systems have a unique level of qualification in service “out-of-the-box”. With a foundation designed by global leaders in hardware/software technology development coupled with leading medical innovators these systems have made the following measures standard:

- ☑ Exceed infectious disease standards
- ☑ Exceed data security standards
- ☑ Secure EMR integration
- ☑ Secure utility integration (printers, vital signs, alerts)
- ☑ Process adherence support
- ☑ Fastest speed to treat (“door-to-provider” time)
- ☑ Reduced cost of innovation
- ☑ Increased speed of implementation
- ☑ Realtime staff load balancing function

The FDA qualified platform effectively consolidates and eliminates the heavy burden of multiple utilities that perform subroutines. The custom medical OS effectively exceeds all security requirements. The secure Open Handset Alliance segment of the CITE technology platforms seamlessly and effectively engage existing digital utilities.

Initiating Increased, Cost Effective and Safe Medical Innovation

Historically innovation in healthcare has been too costly, too challenging to implement and fraught with risks. The primary challenge has been staff adherence and patient demography coverage while the secondary challenge has been time/money of programs. None of this matters if patient/staff safety and security isn't properly accounted for.

Measure:	**Nested Findings:**
Adaptive CITE Solution for Workflow Innovation	Speed to treat Data security adherence Space utilization process

Sub Group Evaluations

- ☑ Ease of use and staff appreciation
- ☑ Technology acceptance, stability and appropriateness
- ☑ Patient appreciation and satisfaction
- ☑ Demographic variants and solutions
- ☑ Effective utility integration
- ☑ Secure EMR integration
- ☑ Infrastructure utilization (active care zones)
- ☑ Comparative analysis of conventional method vs CITE method
- ☑ Economic impact assessment
- ☑ Change management process support

CITE Systems are fully adjustable to facility and departmental needs. The FDA medical grade hardware "Phrazer/Kitsune" are designed with highly efficient graphics accelerators, format sizes, Compression/Decompression algorithms, power systems and datasets. The standardized format, processor, memory stack and datasets enable specialized CITE Content development software that streamlines the quality creation process. The results is full CITE medical engagements that can go from request to in-system availability within mere hours.

Special CITE Content tools:

KeyCap - a capture system that keys, compresses, clips and posts in realtime
Interaction Builder - rapid compiling of CITE video, animation, graphic and UI elements
Sequence Builder - combines interactions into logic trees for patient/staff engagements
Deployment Manager - administrative web app to deploy CITE Engagements to target devices

Unimpeachable System, Staff & Patient Inline Reported Measures

CITE Systems collect certain specific and vital performance measures upon each use. System, staff and patient objective self reporting provides the basis for unimpeachable completion rates, performance rates, population coverage, stability and a myriad of other results. The baseline measures (non-PHI) that occur with every usage:

Automatic Staff Related Output	Automatic Patient Related Output
Medical system login	Patient hand-off (timestamp)
All touch interactions	Patient interaction initiation
Staff member login	Location of engagement
Medical engagement selection	Orientation of Phrazer
Language selection	Patient interaction time (each)
Patient hand-off (timestamp)	Patient decision speed (tap response)
Patient engagement initiation	Patient protocol navigation
LED usage and response	Patient overall timestamp
Staff transition time	Patient use of help function
Staff response time	Patient use of staff call function
Staff engagement action response	Patient use of group mode
Location of engagement	Patient abandonment or completion rate
	Patient next step navigation
	Patient transition rates
	Patient satisfaction report
	Patient comprehension rates (teach-back)
	All touch interactions
	Vibrator use and response
Automatic Integration Measures	**Automatic System Performance Measures**
Location of service	Boot log
Print service initiation	Power levels & charge cycles
Print service completion	Demo or market mode
EMR interchange initiation	Specialty application access
EMR response	Interface navigation
Bit transfers	Bluetooth integration reporting
Total data transfer log	Kitsune status reporting
Generalized send/receive log	Force close logging
Utility send/response log	Microphone interactions
Camera screen reads	Camera interactions
App launch and performance reports	Error logging
Secure service tracking	Use of subroutines
	LED usage and response
	Vibrator use and response

Audit trail services enable realtime access to system performance, usage and granular details into overall measures. These are self generated, uninfluenced, objective realities of the baseline service performance that are at the core of validated claims.

Appendix A: Locations and Situations of Medical Programs

U.S. Military

Domestic military bases: GeaCom coordinated with the US Department of Defense and the US Pentagon with advanced medical, utility and training systems primarily with Army and Air Force Medical. Locations of activities included Walter Reed Army Medical Center, Fort Benning, Fort Polk, Fort Detrick, Fort Hood, Camp Pendleton and others. Primarily during 2010, 2011 & 2012 Phrazer Bulldog was used for technology research, medical uses cases, troop training, forward facing activities and in Military Utility Assessments of COTS systems. Among other services Phrazer helped assess soldier readiness and pre-PTSD evaluations. Phrazer Bulldog performed 100s of thousands of interactions with troops, patients and researchers for testing, measuring and medical applications.

> ***Primary take away*** was Phrazer proved capable of special security requirements, mental assessments and adaptive education. Soldiers with extreme trauma (mental and physical) were able to, and even preferred to, engage with Phrazer as part of their healthcare experience.

In theatre: Phrazer Bulldog was used in Afghanistan, Kuwait and Iraq. The CITE Systems were used with Female Engagement Teams, Army forward activities, military check points, soldier assessments and more. Over a period of nearly two years.

> ***Primary take away*** Phrazer proved capable of vital services in the most urgent, chaotic and pressing environments in the world. Phrazer proved able to achieve the highest digital security requirements in the world, to engage significantly disparate populations and create medical experts of standard trained military populations. Significant cultural cues, realtime coordination processes and security running simultaneously was performed, refined and mastered.

Domestic security: DHS utilized CITE Systems for truthfulness and individual risk assessments domestically. *Restricted Disclosure.*

> ***Primary take away*** was Phrazer proved capable of accurately identifying truthfulness of the users to a P-Factor of .003 in all cases. New learnings were incorporated into future design and function (particularly in the area of drug seeking patients).

Global Health Programs

Cameroon: Phrazer Bulldog was in service at a WHO Chadian Refugee Camp “off the grid”. Phrazer performed full medical work-ups of refugees, transition services for Doctors Without Borders, Primary Care and specialty care. All of this was performed “off-the-grid” utilizing solar and power systems. Studies of patient engagement, comprehension, speed to treat and satisfaction were held and recorded. Studies of staff use, comprehension, successful patient transference and appreciation were performed.

Primary take away Phrazer proved capable of CITE interactions with fully illiterate and technological inexperienced populations. Phrazer proved stable and reliable power system function for weeks on end. Phrazer proved capable of bringing disparate staff populations up-to-speed and transferring vital health knowledge accurately and effectively to inbound staff. New learnings were incorporated into future design and function.

Honduras: Phrazer Bulldog participated with Global Brigades & Mayo Clinic for “off-the-grid” Primary Care services. Services included medical assessments, triage, dental, education and more with a population of low to zero literacy and low to zero technology experience. Studies of patient engagement, comprehension, speed to treat and satisfaction were held and recorded.

Primary take away was Phrazer proved capable of CITE interactions with fully illiterate and technological inexperienced populations. Phrazer proved significantly more accurate and rapid throughput than conventional methods. Phrazer proved stable and preferred by the population. New learnings were incorporated into future design and function.

India: India Health, technologists and researchers have used use Phrazer systems for 7 years and running. There are a variety of ongoing use cases that have included over a million interactions annually.

Primary take away Cross Phrazer generation knowledge transference, uses, stability and fictionality. Heavy use and test environment performance. New learnings were incorporated into future design and function.

Turkey: Medius Systems of Istanbul and Ankara for specialty surgery and services.

Primary take away Measurable benefits of care provider language and culture inclusion. Care provider language switching and patient culture blending.

Russia: St. Petersburg researchers and technologists worked with Phrazer through the Superior model for technology functionality, emissions, stability and security.

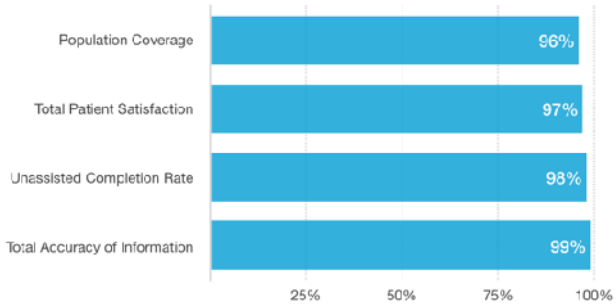
Primary take away High security integration. Multipath Realtime Message refinements and utility interoperability. Retention of key application initiatives via the Open Handset Alliance portal. Key cultural and expectation insights and application of those.

Sweden: Karolinska Institute performed medical protocol assessments primarily around diabetes, pulmonary and cardiac use cases. Tested proper information acquisition and dispensing for population health.
Canada: British Columbia use in day surgery with populations requiring complete language and literacy services from pre-procedure to post procedure education.

Primary take away Successful and complete engagement with immigrant populations unfamiliar with policy, procedure and disease state. The proven ability to engage with low, to no literacy patients with total continuity and quality of care.

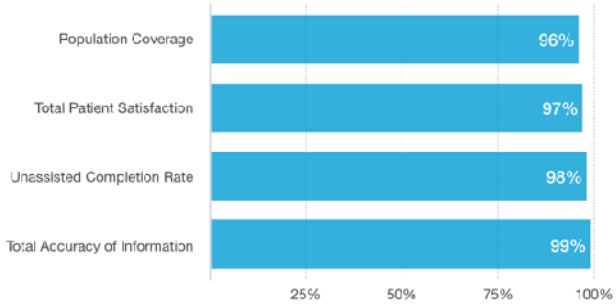
U.S. Domestic & Canada

Emergency Department/Urgent Care: Patient registration, what to expect, triage, chief complaints, history suite, SBIRT+, suicide assessment, language services, informed consents, co-pay services, patient entertainment, experience surveys, EMR services, staff competency, patient education, patient flow, admit, discharge solutions and more continue on a daily basis.



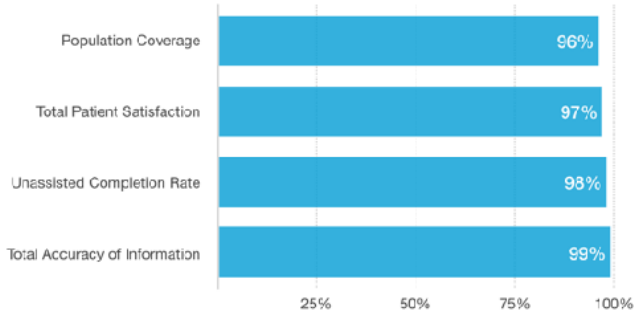
- ✓ >5,000,000 interactions
- ✓ Fastest speed to treat
- ✓ Improved patient and staff experience
- ✓ Harmonized patient flow

Mental Health: Inpatient unit, outpatient programs, emergency services. Mental health Assessments, readmission engagements, patient and family education, occupational therapy and sensory modules, informed consents, 72hr hold, staff competency and more.



- ✓ >100,000 interactions
- ✓ Proven sensory benefits
- ✓ Effective support in crisis
- ✓ Enhanced staff engagements

SBIRT+ Services: 14+ states in primary care, specialty care, hospital, emergency and urgent care and all locations of care ongoing. PHQ-2, PHQ-9, DAST, AUDIT, Smoking Cessation, Social History and other reimbursable activities.



- ✓ >1,000,000 interactions
- ✓ 11 min average engagement
- ✓ $72 average reimbursement
- ✓ "Turn-key" program

Areas of care CITE System solutions

Primary Care: Patient rooming, preventative health engagements, cancer screenings (shared decision making), PHQ-2/9, alcohol assessments, suicide assessment, social, family, past medical history, hypertension and diabetes engagements, vaccines, and much more.

>2,000,000 interactions

Urology: xxxxxx.

>10,000 interactions

Oncology: Shared decision making for stage 4 breast cancer, treatment education, pain management, chemo therapy engagements.

>10,000 interactions

Orthopedics: Pre procedure engagements for total hip and knee replacement, informed consents, discharge education, osteoporosis engagements and more ongoing.

>10,000 interactions

Inpatient: Readmission assessment, leader rounding, education, pain management, assessments, language services, nurse call, patient entertainment and other key engagements.

>10,000 interactions

OB/GYN: Postpartum depression assessment, patient and family education, shared decision making (NICU), patient experience, baby safety and care engagements, patient entertainment, experience assessments.

PACU: Pre-sedation education, consent and post sedation recovery and home care instructions.

>5,000 interactions

Lab: Ongoing FitKit colon cancer screening tools and education to challenging populations (literacy, race, language, culture) and follow-up education with shared decision making. Racial CITE matching measures and benefits.

>100,000 interactions

Ambulatory Surgery Center: What to expect, consent, pre-surgery assessment, patient and family education, experience, medication, post procedure and other interactions related to sedation day procedures:

>60,000 interactions

Other supported initiatives:

Hand hygiene, patient entertainment, consolidation of language services

Appendix B: Specialty FDA Device Development

CITE Systems empower medical enterprises to rethink what they can measure, influence and as a result, what can be achieved effectively in healthcare.

1. Physical CITE informed design
2. Secure medical operating system (OS)
    a. expanded functional capability
    b. design interoperability
3. Infectious disease support
4. Specialty medical user interfaces (UI)
5. FDA production and method
6. Rapid adaptation and innovation

GeaCom partners involved in specialty innovation design include:

Texas Instruments (global leader in digital and analog components)
Specialty components, high speed impedance testing, processor validation, analog and digital tools for FDA grade hardware design.

Micron (world leader of digital memory and security)
High volume, high speed memory access and integration. Elite encryption standards and security. Co-marketing and studies.

QualComm (world leader in processors)
Work with and sourcing for high speed quad core processors and encryption. Collaboration around healthcare, home care and general applications and interoperability.

Arrow Electronics (world's leading component supplier)
Supply Chain and Production Integration partner for sourcing from 33+ countries and providing FDA production resources and delivery. Quality, fulfillment and RMA global services.

Sierra Wireless & Telit Systems (leading cell network developers)
Antenna, emissions, connectivity and reliability design assistance, component and services development.

Redox & Capsule (EMR integration partners)
Full service EMR abstraction connectivity developers. Complete JSON to API & HL7v2 integration, security and support services.

SystemIntegration (leading application interface developers)
Ongoing design and development of staff and patient user interfaces. Application layer testing and 24/7 services.

Intrinsyc (global leader in System On a Module and OS Development)
Ongoing medical grade and MRM operating system functionality and interoperability.

Kimmerling Group (K-18 & K-22 antimicrobial) Developer and co-development of medical mechanical antimicrobials for exclusive use in the medical market.