Harnessing Real World Evidence Clinical Patient Data & Analyses from China and Japan for Life Sciences Research.

Convergence CT solves the real world evidence (RWE) clinical patient data dilemma for life sciences companies in Asia. Rich data emerges, from diagnoses to treatment, lab tests, imaging and results, essential to validate a drug, device or treatment's efficacy.

Yet, in China there are no data warehouses available for commercial access. No ideal patient profile to search for.

In Japan, there are very few data warehouses for clinical patient data. They are not available for commercial research.

But there is a proven path to access RWE patient data that we've honed over 20 years on the ground in Asia.

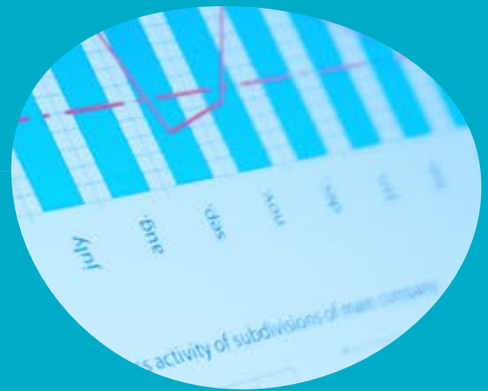
Convergence CT has pioneered a rigorous process in how we assist pharma to secure the right therapeutic patient group, while working within the strict regulatory environments that prevent doctors from sharing their patient registries.

We design research, secure the patient populations safely and legally, use advanced analytics within our proprietary sandbox to extract insights, provide reporting and publish studies in leading journals on behalf of pharma and our wide hospital and doctor network.

Life Sciences leaders rely on our seamless, integrated and collaborative process. As our publishing history shows, we deliver accurate and dependable RWE studies for medical and commercial studies, year after year.

Our network spans 900 hospitals in China and 10 major academic hospitals in Japan, sufficient for projectable studies. We have reliable relationships with thousands of doctors who know our people, our work ethic and our abilities.

(1) Contact Sales@ConvergenceCT.com to access our Chinese RWE sources



Check how many of the following apply to your teams' research challenges and clinical development life cycles:

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- [ ] Developing treatments and/or drugs for specific therapeutic areas and need RWE clinical patient data warehouses but can't procure access?
- [ ] Need to research how Chinese and Japanese health care providers are managing each therapeutic area?
- [ ] Find it difficult to procure longitudinal clinical patient data that contains more than billing and claims data?
- [ ] Do you suspect the accuracy and quality of data you receive from doctors surveyed in China and Japan?
- [ ] Need to track before and after results for treatments, devices and drugs to develop strategic marketing plans?
- [ ] Concerned about how to validate your research without in-country Asian patient population studies?

- [ ] Are current sources of RWE clinical patient data missing critical treatment elements essential to research efficacy?
- [ ] Do you have offices in China or Japan but local efforts to find and build a network of RWE sources has proven to be inconsistent, inaccurate and difficult to substantiate?
- [ ] Is normalizing Asian clinical patient data too challenging? Does normalization miss critical components due to language translation, style of practicing medicine, accuracy concerns and messy unstructured data?
- [ ] Are the privacy and regulatory regimes in China and Japan too difficult and time consuming to manage?

If you checked even one or more boxes, there is a good chance Convergence CT can solve the problems your teams have for most therapeutic areas and ICD 10 Chapters in China and Japan.

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The Secret to Finding Actual Real World Evidence in China

There is no open market for purchasing RWE clinical patient data in China or Japan as there is in the US. Instead, you have to work through CCT's research process and network of doctors.

We've invested 20 years building relationships with doctors across Asia and have access no other company can offer.

Our proven and rigorous process enables Pharma to obtain the rich, accurate clinical patient data needed and rewards doctors for participating.

Revalo, our advanced analytics sandbox, manages the user agreements so that all parties have safe harbour to collaborate. Revalo delivers advanced analytics with statistical insights, trends, and report-ready graphs.

Our Scientific Team works directly and with your team to define your research focus so we find the right doctors with the patient registries that match your goals.

The data is safe, recent and accurate when Pharma works with CCT's proven and rigorous RWE clinical data access research system.

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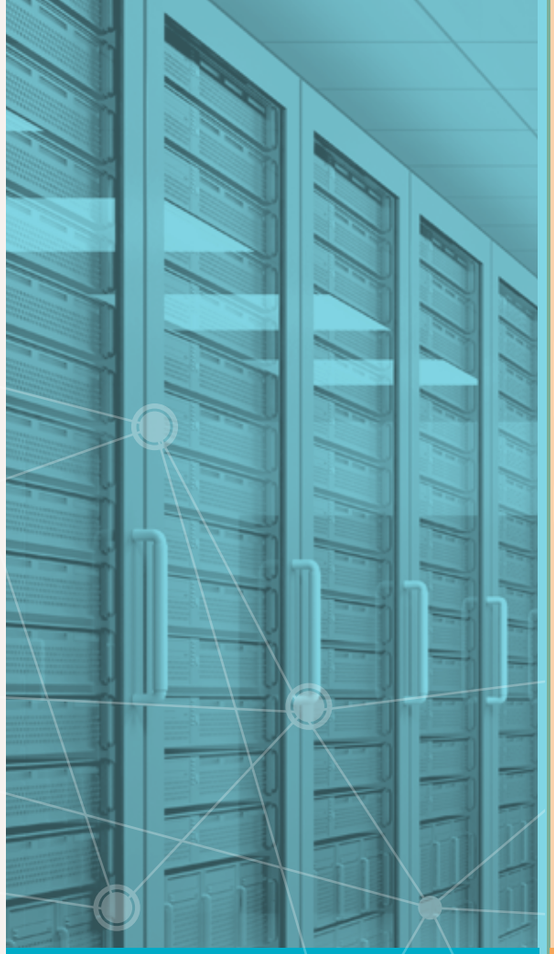

There are no data warehouses in China.

Regulations prevent access to patient profiles from any hospital HIS system.

Doctors are not allowed to work directly with Pharmaceutical companies.

The only way to access RWE clinical patient data is directly through Convergence CT's network of doctors across China.

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CONVERGENCE CT

How We Solve the RWE Clinical Data Access Problem… We Begin With the End in Mind

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CONVERGENCE CT

Our Network of Doctors, Scientific Team & Advanced Analytics Platform (Revalo), can deliver the Answers for Most ICD 10 Chapter Therapeutic Areas.

Our Network of Doctors in China

TOP TIER LEVEL III HOSPITALS

# of Level III Hospitals in China

1500

# of Level III Hospitals CCT has worked with

900

DOCTORS

# of Doctors in our Level III network who are heads of departments

6000

PATIENTS

# of patients CCT has access to within Level III Hospitals

100 M

1 in 7
people choose Level III hospitals

10%
are admissions

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Our Network of Doctors in Japan

HOSPITALS

# of Major Hospitals using EMR Systems

1500

# of Major Hospitals CCT has worked with

10

DOCTORS

# of Doctors in our Network

2000

PATIENTS

# of patients CCT has access to at Major Hospitals

10 M

10%
are admissions

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Types of Projects We've Conducted with RWE Clinical Data in China

- AUDIOLOGY & SPEECH-LANGUAGE PATHOLOGY
- BEHAVIORAL SCIENCES
- BIOCHEMISTRY & MOLECULAR BIOLOGY
- BIOTECHNOLOGY & APPLIED MICROBIOLOGY
- CARDIAC & CARDIOVAS-CULAR SYSTEMS
- CELL & TISSUE ENGINEERING
- CELL BIOLOGY
- CLINICAL NEUROLOGY
- COMPUTER SCIENCE, THEORY & METHODS
- COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS
- CRITICAL CARE MEDICINE
- DENTISTRY, ORAL SURGERY & MEDICINE
- EDUCATION & EDUCATIONAL RESEARCH
- EDUCATION, SCIENTIFIC DISCIPLINES
- EMERGENCY MEDICINE
- ENDOCRINOLOGY & METABOLISM
- ENGINEERING, BIOMEDICAL
- GASTROENTEROLOGY & HEPATOLOGY
- HEALTH CARE SCIENCES & SERVICES
- HEMATOLOGY
- IMMUNOLOGY
- INFECTIOUS DISEASES
- MATERIALS SCIENCE, BIOMATERIALS
- MEDICAL INFORMATICS
- MEDICINE, GENERAL & INTERNAL
- MEDICINE, RESEARCH & EXPERIMENTAL
- MULTIDISCIPLINARY SCIENCES
- NEUROSCIENCES
- NURSING
- NUTRITION & DIETETICS
- OBSTETRICS & GYNECOLOGY
- ONCOLOGY
- ORTHOPEDICS
- OTORHINOLARYNGOLOGY
- PARASITOLOGY
- PEDIATRICS
- PERIPHERAL VASCULAR DISEASE
- PHARMACOLOGY & PHARMACY
- PSYCHIATRY
- PUBLIC ENVIRONMENTAL & OCCUPATIONAL HEALTH
- PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH
- RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING
- REHABILITATION
- RESPIRATORY SYSTEM
- RHEUMATOLOGY
- SPORT SCIENCES
- SURGERY
- TRANSPLANTATION
- UROLOGY & NEPHROLOGY
- VIROLOGY

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Examples of Questions Accepted for Publication Using Our RWE Clinical Patient Data

ONCOLOGY

- Supplemental Breast Cancer Screening Ultrasonography in Women with Dense Breasts: A Systematic Review and Meta-Analysis
- Analysis of circulating tumor cells in patients with hepatocellular carcinoma recurrence following liver transplantation.
- An examination of surgical and survival outcomes in the elderly (65-79 years of age) and the very elderly (≥ 80 years of age) who received surgery for gastric cancer
- The impact of comorbid diabetes on short-term postoperative outcomes in stage I II colon cancer patients undergoing open colectomy
- Incorporation of Astragalus Polysaccharides Injection During Concurrent Chemoradiotherapy in Advanced Pharyngeal or Laryngeal Squamous Cell Carcinoma: Preliminary Experience of a Phase II Double-blind, Randomized Trial
- Clinical significance of circulating tumor cells (CTCs) undergoing EMT in the diagnosis and prognosis of patients with hepatocellular carcinoma
- Correlation Between Postoperative Health-Related Quality of Life and Care Needs of Oral Cancer
- A nationwide survey of fatigue in cancer patients in Taiwan: An unmet need
- Efficacy of statin and metformin therapy in prostate cancer patients with hyperlipidemia

ENDOCRINOLOGY & METABOLISM

No associations between serum lipid levels or HOMA-IR and asthma in children and adolescents: a NHANES analysis

GATA-4-expressing mouse bone marrow mesenchymal stem cells improve cardiac function after myocardial infarction via secreted exosomes

Diabetic Distal Symmetrical Polyneuropathy: Correlation of Clinical, Laboratory, and Electrophysio-logic Studies in Patients with Type 2 Diabetes Mellitus

Outcomes of the GORE EXCLUDER AAA Leg Endoprosthesis for Treatment of Central Vein Stenosis or Occlusion in Patients with Chronic Hemodialysis

Development and evaluation of a training model for paracentetic suprapubic cystostomy and catheterization

Effect of a comprehensive plan for periodontal disease care on oral health-related quality of life in patients with periodontal disease in Taiwan

Dual effects for lovastatin in anaplastic thyroid cancer: the pivotal effect of transketolase (TKT) on lovastatin and tumor proliferation.

Analysis of circulating tumor cells in patients with hepatocellular carcinoma recurrence following liver transplantation.

Relationships between chronic comorbidities and the atherosclerosis indicators ankle-brachial index and brachial-ankle pulse wave velocity in patients with type 2 diabetes mellitus

Effect of hysteroscopy prior to starting in-vitro fertilization for women with recurrent implantation failure: a meta-analysis and systematic review

Prevalence of migraine in Han Chinese of Fujian Province: An epidemiological study

Apatinib monotherapy for advanced VEGFR-2-negative nasopharyngeal carcinoma: a case report

MEDICINE, GENERAL & INTERNAL

Velocity Vector Imaging For the Assessment of Segmental Ventricular Function in Children with a Single Right Ventricle after Cavopulmonary Anastomosis

CARDIAC & CARDIOVASCULAR SYSTEMS

Impact of timing on in-patient outcomes of complete repair of tetralogy of Fallot in infancy: an analysis of the United States National Inpatient 2005-2011 database

Platelet microRNA 365-3p expression correlates with high on-treatment platelet reactivity in coronary artery disease patients

High Angle Coronary Bifurcation Stenotic Lesions Treated With One Drug-Eluting Stent and Sequential Ballooning Technique, A Better Strategy?

Bone marrow mesenchymal stem cells (BMSCs) over-expressing GATA-4 improve cardiac function following myocardial infarction

DAPT plus cilostazol is better than traditional DAPT or aspirin plus ticagrelor as elective PCI for intermediate-to-highly complex cases: prospective, randomized, PRU-based study in Taiwan

Comparison of Percutaneous Transluminal Angioplasty with Stenting for treatment of central venous stenosis or occlusion in hemo-dialysis patients: a systematic review and meta-analysis

Comparative Study of Clinical and Epidemiological Characteristics of Major Pediatric Adenovirus Epidemics in Southern Taiwan

The estimated impact of the 5-year national vaccination program on the trend of 23-valent pneumococcal polysaccharide vaccine vaccination rates in the elderly in Japan, 2009-2018

Pneumococcal vaccination reduces in-hospital mortality, length of stay and medical expenditure in hospitalized elderly patients

INFECTIOUS DISEASES

FAQ

FAQ WORKING WITH RWE LONGITUDINAL & COMMERCIAL DATA

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1) Why are data warehouses unavailable in China?

• Government owned hospitals have not placed a priority on assembling their data. Their priorities are improving health outcomes.

• There are efforts to normalize their HIS (health information system) data but it is a vast project. In China, they have not moved to an EMR (Electronic Medical Record) transactional system-wide database.

2) Why is it difficult to access the few data warehouses in Japan?

• Many EMR systems are proprietary to the vendor and don't allow the hospital to access the data directly.

• Those data warehouses that do exist are available only to internal researchers within university hospitals.

• National patient registries are available on a limited basis and are not of high enough quality (current and accurate) to be useful.

3) If we can't obtain a profile for the data before we start a study, how will we know we have the right data?

• Our scientific team will work with your team to define the research. Then we match the research parameters with the doctors within our network that have the right patient profiles. You'll see evidence of this before our Medical Liaisons interview these doctors to collect your data.

4) How is CCT able to access such RWE Clinical Patient Data when most companies and pharma are only able to access claims data?

• We have earned the trust of doctors and hospital providers by building relationships within China and Japan for the last 20 years.

• We've demonstrated that we keep patient data safe within Revalo, our advanced analytics sandbox, and follow each country's regulatory system to the letter, with the help of our Shanghai based legal team.

• The providers/doctors in our network need to do research. However, they are unable to turn their clinical patient data into normalized data they can analyze. We have proven time again that we have the rigorous methods that enable normalization plus deliver meaningful accurate analysis they can trust.

5) How do we know the clinical patient data is valid?

• Data is drawn directly from our doctors' own patient registry systems. The provenance is only one step removed from where you will view this data in our advanced analytics sandbox, Revalo. Secondly, as each participating doctor in your research will be publishing their own study, all data is peer reviewed and verified.

6) Why does the data we are collecting from the doctors have to be turned into a study? We want to keep our findings confidential.

• The data from doctors can be turned into a multitude of studies. Our scientific team are experts at creating variations for each doctor.

• Your study findings will not be published without your consent.

• The doctor's views of their own research are what will be turned into studies and published.

• While doctors and pharma are looking at the same patient population and ICD 10 chapter results, each of you will pull different findings and insights from the same data.

7) Can our scientific teams work with the data that Convergence CT gathers for us during a project?

• All clinical patient data must stay in China.

• Your team can work with our scientific team and collaborate within Revalo on the statistical analyses as long as your researchers are inside China; or your team can work through our scientific team with our own researchers inside China.

8) Are you able to perform retrospective as well as prospective studies with multiple cohorts?

• Yes

9) What can this data reveal for a specific condition like breast cancer with other presenting issues?

• As the doctors in Level III hospitals maintain their own patient registries and are heads of departments, their data often provides the diagnoses, the interaction of treatment with status, co-morbidities and lab tests for the demographics important to your research.

10) Can we use our analytics platform to analyze the data Convergence CT provides us?

• No. All research relating to China and Japan must be done by researchers in-country with our Revalo platform.

• If you have specific routines you want to run, we can implement that within our platform.

• All data is normalized and de-identified before arriving in our Revalo sandbox. Translation can be provided. Revalo manages the regulatory environment so that no data can be downloaded. Only the findings and analyses can be downloaded. This creates a safe, secure and compliant collaborative environment where researchers can make federated queries.

11) How long will it take our researchers to learn to work with Revalo?

• It takes about 20-30 minutes to learn how to work with the data tiles and pull out the visual graphics and facts about the data.

• Researchers can use Lumira, R or Python for advanced analytics.

12) Where is the data located and where do the researchers need to be located to analyze the data?

• Revalo is offered on AWS within China or Japan.

• As the data is in China, all researchers looking at the data must also be in China.

• If having researchers in China or Japan is problematic, our team can deliver that service for you.

13) Can we import the data into our own advanced analytics sandbox/program?

• No. You can download your research findings but you can't download any of the patient data. All patient data remains under the control of the data provider.

• You can add your own data to compare to the data in Revalo.

14) Can we add data from our own applications to Revalo to compare to the data you gather for our projects?

• Yes. We can bring most data sources into Revalo so that you can unify your investigations into the data tiles that work for your analyses.

15) Who is responsible for de-identifying, cleaning, language translation, normalizing and verifying accuracy?

• Convergence CT delivers the data to the sandbox ready to work with.

• We are experts at normalizing and de-identifying data in Mandarin and Japanese.

16) Given the volumes of data these types of projects will be accessing, what type of data lag will our researchers experience?

• Generally, 15 seconds or less, rather than minutes or hours.

17) Is there a blanket method for removing PHI (Protected Health Information) that is the same across all countries?

• We remove personal information as required.

• We use pseudo anonymization to de-link it from any record number.

18) How recent is this patient group?

• As we are not accessing a data warehouse to obtain this real world evidence, the clinical patient data can be as recent as specified.

19) Are you able to collect other data from this patient group that we may need such as nutrition received pre and post-surgery?

• Yes, we can determine the scope of your project and collect additional data points like nutrition retrospectively or prospectively.

20) Can we collaborate with the doctors providing this clinical patient data?

• Yes, you can ask them questions and we'll find you the answers.

21) What stage of research – protocol development to post marketing would most benefit from working on a project with Convergence CT?

• All stages because this is longitudinal data.

22) What other data can we add to the sandbox or use to compare within a project?

• You can add extract un-structured textual data on an as needed basis for a fee.

• Our data sets can be analyzed with your own sources of data on a federated basis inside the Revalo sandbox.

• We can acquire other patient populations or ask questions of current patient populations as needed to collect pertinent data points.

23) How do I move back and forth between our databases and Revalo?

• You can't. Instead you can bring your data into Revalo for a fee.

24) Can we download our findings or any of the patient data into our research?

• You can download your findings, but not any of the clinical patient data.

25) Are there enough patient files to achieve projectability in Asia?

• Our scientific team will help your team determine the size of the patient population you will need to adequately address the issues of projectability. Then our Medical Liaisons will find the right number of appropriate doctors who wish to participate in the particular study.

26) Do you also have data warehouses in any other countries or are all RWE clinical patient data requirements driven by this study framework?

• We have longitudinal clinical patient data available for subscription from the following countries by request:
i. Japan
ii Taiwan
iii. US

• You receive access to real longitudinal clinical patient data in an easy-to-use analytic platform

• You can search by therapeutic area.

• You are able to combine this data with your own clinical patient data to extend and compare your research within Revalo.

• You can set the length of your subscription time period.

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ConvergenceCT's Capabilities in China

SOURCES

- Physicians
- Government and Private Hospitals
- Hospital networks
- Big Data Health Research Consortia

CLIENTS

Pharmaceutical

- Researchers
- Distributors
- AMGA Analytics
- Research Consortia
- Hospital Networks
- Academia

CAPABILITIES

- De-Identified Data
- Normalization
- Therapeutic Areas
- Peer-reviewed research
- Longitudinal Patient Data
- GDPR Compliant Sandbox
- Regulatory Environment
- Mortality
- Advanced Analytics
- Data Sharing Agreements
- Diagnosis
- Structured data
- Lab Tests
- Doctors' notes
- Unstructured data
- Principle Investigators
- Doctor Visits
- Country-Wide Research Coordinators
- Data Dictionaries
- Drugs
- Treatments
- Entity Relationship Diagrams
- Scientific Analysis
- Translation
- Specific Diseases
- Arm's Length Protection
- Specific Studies
- Co-Morbidity

More than 200 on-going projects per year	More than 16,000 medical research consultations	More than 300 recently published studies	More than 400 research experiments	Engaged by Top 25 pharma	Awarded Best Data Warehouse for Healthcare by IBM and SAP	Member of the board of AMGA Analytics *(American Medical Group Association)*

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ABOUT CONVERGENCE CT

Convergence CT (CCT), has been wrangling structured and unstructured healthcare data for 20 years completing more than 100 pharma research studies in 2019 alone, even complex cancer studies. We are experts in acquiring and normalizing real world evidence clinical patient data in Japan, Asia, China and Europe and have worked with many top pharmaceutical clients and hospital networks around the world.

CCT sought to eliminate the barriers that have made collaboration and data sharing beyond the boundaries of organizations and borders, unrealizable for doctors, clinicians and pharmaceutical companies. So, in 2017, we built our federated query platform, Revalo, designed to rectify these universally recognized problems.

As you are keenly aware of, studies need more appropriate data, yet it is laborious to bring in, and many doctors fear misuse, so don't participate. Revalo eliminates such barriers to collaboration.

We are experts in taking structured and unstructured data in different languages, countries, regulatory conditions, and normalizing it quickly and effectively, inside our sandbox that doctors trust. All data is de-identified. No data can be downloaded by any tool or App, except your research findings.

CCT designed this platform to cross connect investigators: they just point/click and open. It means Ravelo is so intuitive that non-data scientists can work together in the sandbox (within minutes of signing on) building an instant ecosystem that accelerates research discoveries from years to months.

The American Medical Group Association (AMGA) selected CCT to fund their analytics group and Lambert Onuma, the CEO, sits on the AMGA board giving CCT direct access to researchers and clinical patient data your pharma investigators should be working with.

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