Comprehensive Landscape Assessment of Real-World Databases for HEOR studies in the Asia-Pacific Region: A growing opportunity

Putnam
Inizio Advisory

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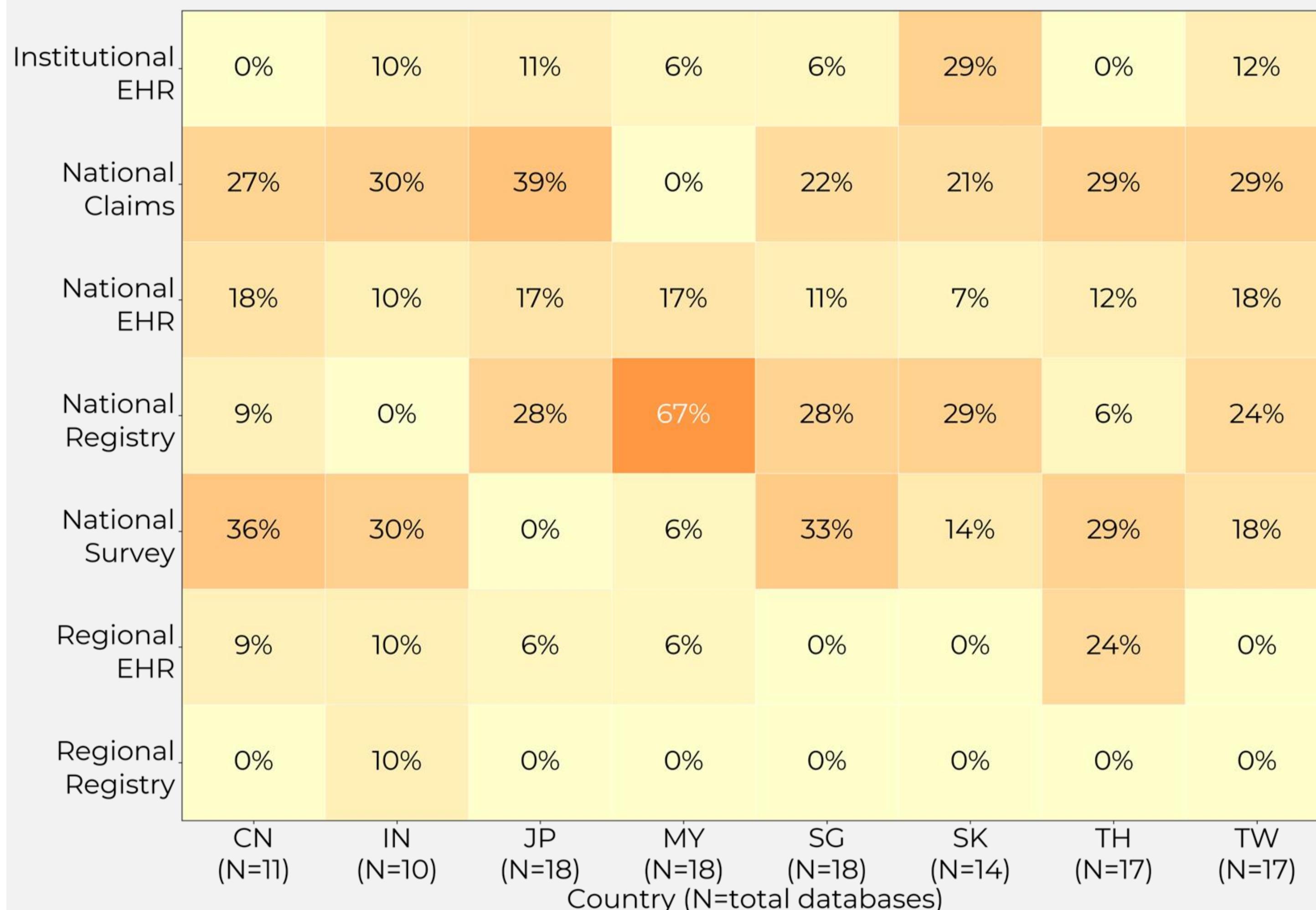
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Background

- Rising role of RWE: Real-world evidence (RWE) databases are increasingly recognized as essential resources in both clinical research and health economic (HE) studies, providing valuable insights into healthcare practice outside of controlled clinical trials.
- Policy alignment: Health decision makers are making a concerted effort to develop policies informed by real-world information, emphasizing the importance of reliable data sources for evidence-based decision-making.[1]
- Gaps in the literature: Past publications on RWE databases have been predominantly focused on USA and Europe. Reports covering Asia-Pacific countries are relatively limited and often lack detail on data accessibility and the availability of health resource utilization (HRU) and cost data.[2,3,4]
- Study objective: The aim of this study was to provide a comprehensive overview of RWE databases in the Asia-Pacific region including China, India, Japan, Malaysia, South Korea, Thailand, Taiwan, and Singapore with a critical assessment of their accessibility and health economics content.

Methods

A systematic search was conducted to identify RWE databases in the Asia-Pacific region, drawing from PubMed/MEDLINE, Google Scholar, ResearchGate, ISPOR resources, and internal repositories. The search encompassed peer-reviewed publications and indexed registers, with study lists reviewed to uncover gaps between findings and known databases. Each database was evaluated for accessibility and classified into three tiers: high (open access with minimal restrictions), moderate (conditional access via collaborators or managed queries), and low (limited or unclear access). Databases were also assessed for completeness of health economic data, focusing on health resource utilization (HRU)—including inpatient care, diagnostics, surgeries, outpatient visits, emergency services, and medication use—and direct cost data across care settings. Based on data richness, databases were categorized as rich (comprehensive HRU and cost data), moderate (partial availability), or poor (minimal usable information), supporting a tiered framework for mapping RWE resources across the region.

Results

A total of 123 RWE databases are identified across the Asia-Pacific region for the analysis. Figure 1 shows type of RWE databases available by countries.

Figure 1: Distribution of RWE databases by data-types across Asia-Pacific

	CN (N=11)	IN (N=10)	JP (N=18)	MY (N=18)	SG (N=18)	SK (N=14)	TH (N=17)	TW (N=17)
Institutional EHR	0%	10%	11%	6%	6%	29%	0%	12%
National Claims	27%	30%	39%	0%	22%	21%	29%	29%
National EHR	18%	10%	17%	17%	11%	7%	12%	18%
National Registry	9%	0%	28%	67%	28%	29%	6%	24%
National Survey	36%	30%	0%	6%	33%	14%	29%	18%
Regional EHR	9%	10%	6%	6%	0%	0%	24%	0%
Regional Registry	0%	10%	0%	0%	0%	0%	0%	0%

Country (N=total databases)

Overview of RWE databases in Asia-Pacific countries

Asia-Pacific exhibits rapid but uneven RWE development. Some countries have comprehensive government-held claims databases and registries, while others remain fragmented across hospital electronic health records (EHRs), private claims, and vendor platforms. The common challenges include access restrictions, interoperability gaps, variable quality, and governance hurdles despite growing regulatory and multi-stakeholder initiatives.

China (CN): China's RWE databases are rapidly advancing, supported by diverse data sources and evolving National Medical Products Administration (NMPA) guidance. However, challenges persist around data quality, access, standardization, and record linkage. Multi-stakeholder initiatives and platforms are accelerating RWE generation, aiding research, regulation, and patient-care insights globally.

India (IN): India's RWE databases are nascent and fragmented, drawing from hospital EHRs, disease registries, limited claims sources, and commercial platforms. Even though digitization and vendors improve data analytics, inconsistent standards, limited private coverage, restricted access, and governance hinder linked RWE studies nationwide.

Japan (JP): Japan's RWE databases include registries, EHRs, and claims, supported by growing regulatory engagement. However, limited data linkage, access restrictions, variable quality, and methodological gaps continue to slow broader standardization and acceptance.

Malaysia (MY): Malaysia's RWE databases are emerging, but fragmented, sourced from hospital EMRs, disease registries, limited claims, and pilot platforms. Digitization and academia-industry initiatives increase database availability but inconsistencies in standards, restricted access, weak linkage, variable quality and governance hinder scaling.

Singapore (SG): Singapore's RWE infrastructure is mature, built on comprehensive EHRs, national registries, payer datasets, and commercial platforms. It provides strong data quality and interoperability, but remains constrained by private-sector gaps, access restrictions, and alignment issues.

South Korea (SK): South Korea's RWE landscape is advanced, using national claims, hospital EHRs, registries, and government programs; Ministry of Food and Drug Safety (MFDS) guidance aids uptake, but access limits, cross-sector linkage gaps, standardization needs, and lack of governance gaps continue to persist.

Taiwan (TW): Taiwan's RWE infrastructure is robust, centered on the National Health Insurance Database, registries, EHRs, and the Health and Welfare Data Center. Regulatory support enables pharmaco-epidemiological research, but data linkage and standardization remain the major challenges.

Thailand (TH): Thailand's RWE is expanding from EHRs, national registries, claims, and pilot datasets. HTA initiatives support research, but public–private fragmentation, inconsistent standards, interoperability gaps, data quality, and access restrictions limit RWE studies.

Figure 2 illustrates the distribution of data types categorized by different levels of accessibility and content richness. The analysis shows that three databases in Japan offer both high accessibility and rich content, whereas five databases in Thailand provide rich content but limited access. Overall, most databases exhibit constraints in either accessibility, content depth, or both in Asia-pacific countries.

Figure 2: Database accessibility and health economics content

	Low Access	Medium Access	High Access
Rich Content	BHD [E] (TH), UCS [C] (TH), SSS [C] (TH), NHIC [C] (TH), NDSS [R] (TH), NHIRD [C] (TW), LHID [C] (TW), MESISAVE [C] (SG), SCRI [R] (SG), SCLOD [R] (SG), CHAS [C] (SG), MOH [C] (SG), MyHDW [E] (MY), HIS [E] (MY), PMJAY [C] (IN), CGHS [C] (IN), UEBMI [C] (CN), URBMI [C] (CN), NHIP [E] (CN), RHIP [E] (CN)	HIRA [C] (SK), NHIS [C] (SK), KHIS [C] (SK), NHSO [C] (TH), HDC [E] (TH), TNHA [C] (TH), NHMS [S] (MY), NDB [C] (JP), AJHA [E] (JP)	JMDC [C] (JP), MDV [C] (JP), DeSC [C] (JP)
Moderate Content	AMCCRDW [E] (SK), NCSP [R] (SK), NEDIS [E] (SK), SNUH [E] (SK), YUHS [E] (SK), RHD [E] (TH), NTCPH [E] (TH), HIE [E] (TH), TMUCRD [E] (TW), TBB [E] (TW), TCR [R] (TW), CGRD [E] (TW), NTUH [E] (TW), TSR [R] (TW), EHDB [C] (TW), PHDB [C] (TW), MHDB [C] (TW), CGMH [E] (TW), NRDO [R] (SG), NEHR [E] (SG), PREPARE [R] (SG), NPHS [S] (SG), SMHS [S] (SG), SSHS [S] (SG), SingCLOUD [E] (SG), SDBs [E] (SG), SH [E] (TH), NCVD [R] (MY), NDHM [E] (IN), AIIMS [E] (IN), NCRP [R] (IN), CHIRA [C] (CN), NCCR [S] (CN), CCDRFS [S] (CN)	KCCR [R] (SK), KUMC [E] (SK), SH [E] (TH), TNIDSS [R] (TW), DPC [E] (JP), JammNet [C] (JP), NUSM [E] (JP), BIOJ [E] (JP)	KNHANES [R] (SK), KoGES [R] (SK), NHES [S] (TH), TPHS [S] (TH), GSHS [S] (TH), TCDC [S] (TW), NMHS [S] (IN), NHSCD [C] (IN), NFHS [S] (IN), CHARLS [S] (CN), CHNS [S] (CN), MIDNET [C] (JP), JACP [R] (JP), JCKD [R] (JP), JADER [R] (JP)
Poor Content	NHIS [S] (TW), TBR [R] (TW), NAHSIT [S] (TW), STCC [R] (SG), NNS [S] (SG), PCS [S] (SG), ESCD [C] (SG), SingStat [S] (SG), eHMIS [E] (MY), NDR [R] (MY), NCR [R] (MY), NRR [R] (MY), NBTR [R] (MY), NIR [R] (MY), CRC [R] (MY), NMR [R] (MY), MMHR [R] (MY), MADRAC [R] (MY), NBR [R] (MY), TBIS [R] (MY), NNMS [S] (IN), SRS [E] (IN), DSP [R] (CN)	KNCI [S] (SK), CaseMix [E] (MY), JPHC [E] (JP), NHFPC [C] (CN), HMUD [E] (JP), JMRI [R] (JP), JANIS [R] (JP)	KHPS [S] (SK), DHS [S] (TH), MICS [S] (TH), CGRN [C] (JP)

Discussion & Conclusion

Across eight Asia-Pacific countries, RWE databases capture HRU and cost data with varying coverage and accessibility. Japan's private datasets provide rich content and are open to researchers, while South Korea, Taiwan, and Singapore offer comprehensive but restricted access. India, China, Malaysia, and Thailand face fragmentation. Expanding access would enhance health economic research and support more informed coverage and reimbursement decisions.

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Abbreviations
[S] - Survey; [R] - Registry; [C] - Claims; [E] - EHR
(CN) - China; (IN) - India; (JP) - Japan, (MY) - Malaysia, (SG) - Singapore; (SK) - South Korea; (TW) - Taiwan; (TH) -Thailand

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