

Table 2: The Potential Barriers to Implementing the Current Healthcare Information Exchange Systems in Thailand (Adapted from Van Panhuis Et Al., 2014 and Modified After In-Depth Interview)

Barriers	Elucidation
Technical Barrier	<ul style="list-style-type: none"> - Data have not been appropriately collected. - Lack of data collection standards and data archiving systems or health data systems somehow could not meet standards. For instance, the data are often collected for short-term purposes. Besides, data preservation or archiving may not be prioritized, especially in situations of limited capacity and resources. Data is often collected/recorded in different forms/formats/languages, limiting the possibility of integrating and using such data with other data sets. This could cause difficulty in generating central healthcare information systems. - Technical solutions are not available. - The source of data was not identified for additional research/study and data correction if any error is found.
Motivational Barrier	<ul style="list-style-type: none"> - Inadequate personal and institutional incentives to generate healthcare information systems or prioritize data sharing over other pressing duties. - Possible criticism: disagreement on data use. Data providers may disagree with the intended secondary use of their data or may consider their data inappropriate for a particular service. - Stress and workload conditions that affect efficiency pull out the work-life balance. - Inappropriate organization public relations strategies and practice. - The apparent incapability of conflict management for both individuals and organizational levels.
Economic Barrier	<ul style="list-style-type: none"> - Effects on corporate reputation; possible economic damage - Lack of resources and skilled human resources
Political Barrier	<ul style="list-style-type: none"> - Unclear policies, practices, and procedures - Administrative is not flexible enough; Restrictive policies/standards - Lack of standard practice
Legal Barrier	<ul style="list-style-type: none"> - The data ownership of any competent authorities or related regulators. This could lead to some obstacles (e.g., restrictive data sharing, limiting data accessibility, even time-consuming in the process). - Lack of standard practice/regulation, resulting in inconsistent ad-hoc guidelines to prevent and control data breaches.
Ethical Barriers	<ul style="list-style-type: none"> - Lack of reciprocity. Data sharing practices are not often for mutual benefits. Significantly, the privileges granted by a person or an organization. For example, data producers may feel exploited in transactions where they receive little credit or benefit from their work, whereas data users who can rapidly analyze data and publish results benefit from academic credit and career advancement. - Lack of proportionality. Regarding medical ethics, the medical interventions and risks should be proportionate to the possible lives saved. For research, the careful deliberation in assessing the risks and benefits that derive from the

Barriers	Elucidation
	amount and type of data requested compared to the potential impact of its secondary use.