



Final Report: Market Preparation for AR-DRG and Shadow Billing Implementation



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1 Executive Summary

The Council of Health Insurance (CHI) has initiated its transformation agenda with a vision "...to be an international leader in achieving best value in healthcare to the beneficiaries of cooperative health insurance" and with a mission to "improve the health of beneficiaries through a regulatory environment that enables stakeholders to promote transparency, equity, and value-based care." As part of its strategic plan, CHI has devised the following objectives:

- Enable target population segments to be fully covered and protected.
- Progressive policies should enable payers and providers to improve beneficiaries' services and the sector's sustainability and innovation.
- Operate as a reliable, lean, and learning regulator.
- Catalyze the digital transformation of the sector.

The above strategic objectives are aligned with the Vision 2030 Realization agenda. Internal and external dependencies are being identified and monitored for progress.

Key components in achieving sustainability and enabling payers and providers to improve their services are:

- Transparency in care provision.
- A detailed understanding of the patient case mix.
- Measurement of care quality and patient outcomes.
- And a good understanding of the financial value of services provided.

This requires adopting and standardizing the existing comprehensive coding, patient classification system, and payment models other than the current fee-for-service system.

Solventum provided AR-DRG implementation consulting services to the private healthcare sector to support the CHI strategic framework. Specifically, Solventum provided:

- Training and education services for clinical documentation, coding, and AR-DRG for the private sector (payers and providers).
- Reviewed and provided recommendations for standards and policies.
- Provided comprehensive change management and project management services, documented key payment method decisions, and executed a transparent DRG pilot process with a group of stakeholders, which included shadow billing.

Solventum leveraged its global expertise in clinical documentation and coding, patient classification systems, and payment methodologies to benefit CHI in improving clinical data quality and preparing the private sector for the transition to a new DRG-based inpatient payment system.

At the end of this 12-month project, the private healthcare sector is prepared to extend Shadow Billing to the entire private market and is ready to start with AR-DRG-based payment for inpatient services soon thereafter.

Key Project Achievements



2 Implementing AR-DRG Project

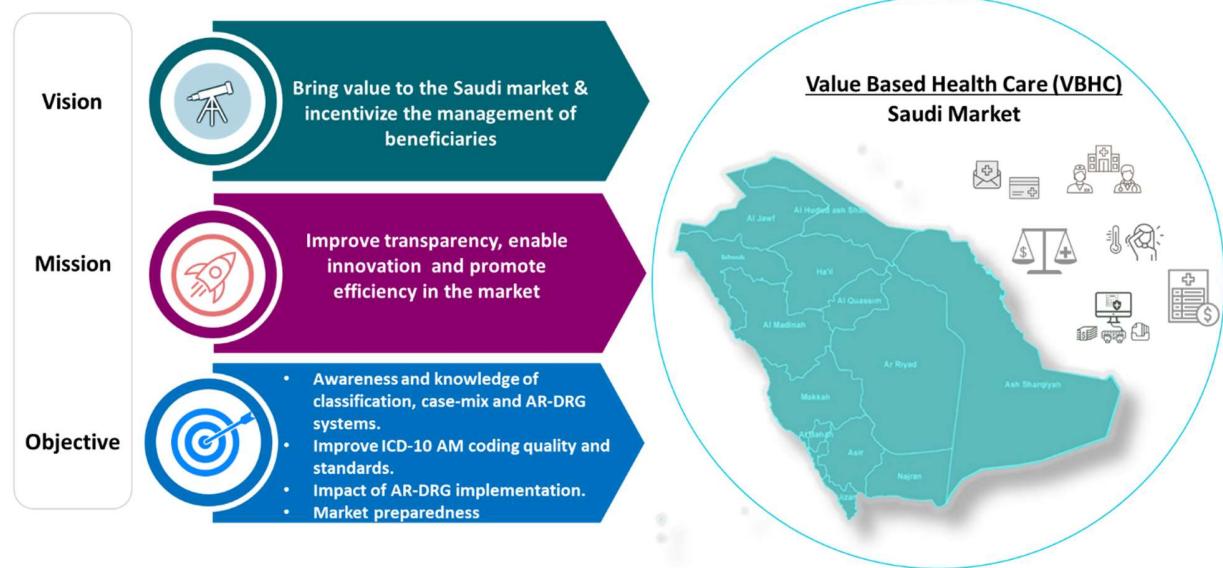
2.1 Introduction

Diagnosis Related Groups (DRG) is the most utilized case-mix tool worldwide for admitted patient care. It is used for payment purposes, performance measurement, healthcare improvement, and value-based healthcare introduction.

2.2 Project Objectives

This project phase aims to establish implementation foundations for the AR-DRG system across CHI, which will provide the required guidance, support, and direction for implementing this system.

The scope of this project:

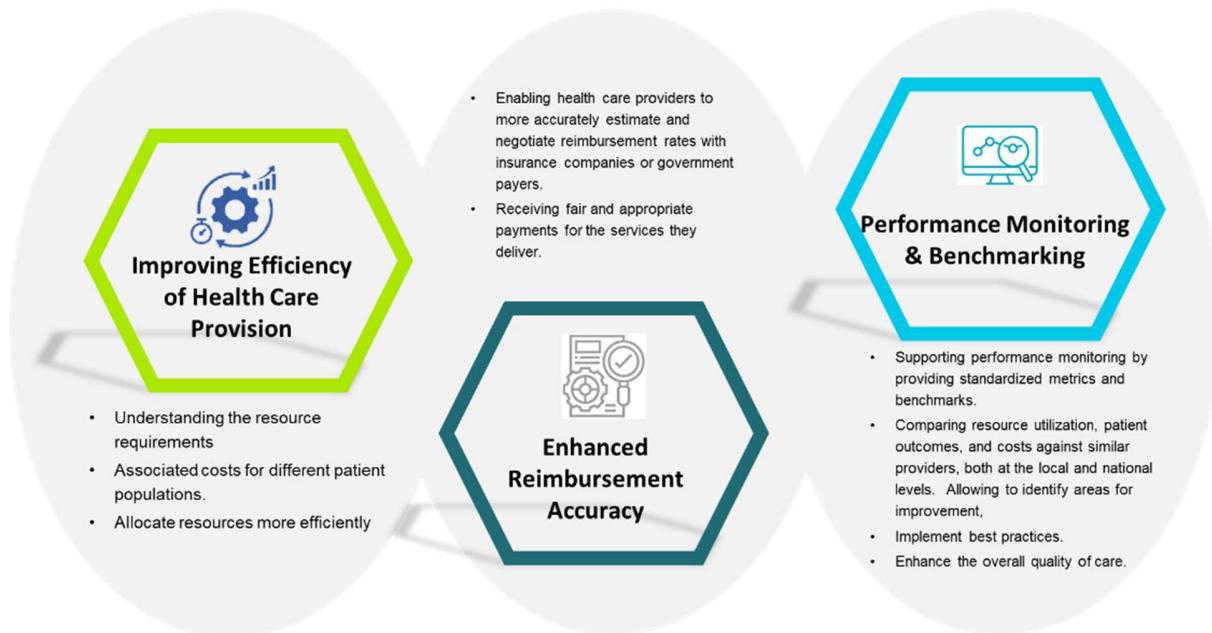


- Increase awareness and knowledge of patient classification systems, case-mix, and AR-DRG systems.
- Improve ICD-10 AM coding quality and standards.
- Understand the impact of AR-DRG implementation.
- Market preparedness for AR-DRG implementation and shadow billing.

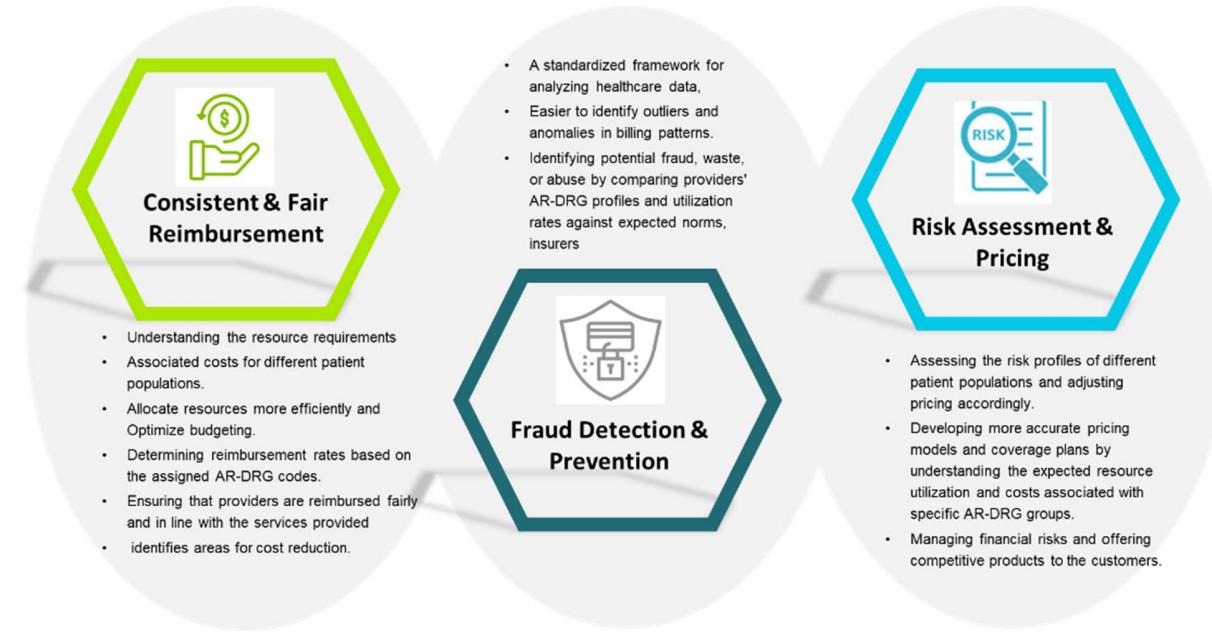
2.3 Project Benefits to the Saudi Private Healthcare Sector

The implementation of AR-DRG in Saudi Private Health Market will bring the following benefits to the Health Care providers and the Health Insurance companies:

Benefits of Implementing AR-DRG Health Care Provider



Benefits of Implementing AR-DRG Health Insurance Companies

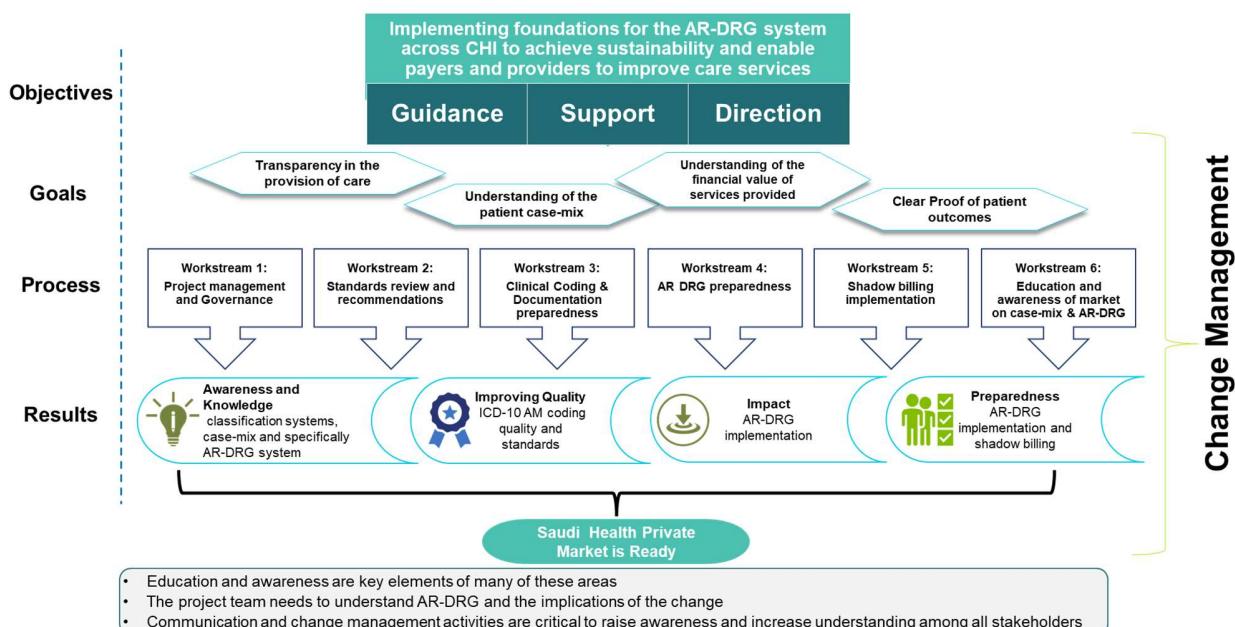


2.4 Scope of Work

The project outlined a comprehensive approach to achieving the project's objectives, which aligned with CHI's strategic goals and the broader vision of improving healthcare delivery systems. This project addressed the critical components necessary for the successful planning, execution, and transition of the national AR-DRG and Shadow Billing framework, ensuring it meets the unique needs of the KSA healthcare ecosystem. The project is structured into six key workstreams of focus:

1. **Project Governance and Management:** Establishing robust governance structures change management (including communication plans) to ensure streamlined decision-making, accountability, and project oversight.
2. **Standards Review and Recommendations:** Assessing and addressing gaps in existing standards and case-mix to align with international best practices and ensure harmonization with national regulations.
3. **Clinical Coding and Documentation Preparedness:** Building market capacity through assessments, workshops, and tailored recommendations for improving coding, auditing, and documentation practices.
4. **AR-DRG Implementation Preparedness:** Providing frameworks, tools, and guidelines to support the successful deployment of AR-DRG across stakeholders while addressing market readiness and infrastructure alignment.
5. **Shadow Billing Implementation:** Introducing and operationalizing shadow billing frameworks as a transitional phase toward full DRG reimbursement, supported by workshops, financial analysis, and stakeholder guidance.
6. **Education and Awareness:** Engaging stakeholders through educational campaigns and workshops to build understanding and capacity for case-mix and AR-DRG adoption.

Each project component has been implemented to ensure effective stakeholder engagement, capacity building, and alignment with CHI's objectives while addressing the market's current state and readiness for transformation.



3 Methodology & Project Plan for Preparation Period

3.1 Introduction

This section outlines the methodology employed during the implementation of the AR-DRG preparation period for the private healthcare market. The methodology is designed to assess the market's current state, identify any barriers to success, and gauge the readiness of various stakeholders.

3.2 Approach

The approach to the preparation period was systematic and multifaceted, encompassing various data collection and analysis techniques. The goal was to gather comprehensive insights to provide a holistic view of the market, organizational readiness, and stakeholder engagement. The methods employed included market analysis, stakeholder input, and qualitative and quantitative data sources.

- Attendee Representation and Market Diversity

To ensure the findings represented the market, the attendee group was diverse and reflected various segments of the healthcare ecosystem. The size of health providers included small, medium, and large organizations, allowing for insights that span different scales of operation. Additionally, the sectoral composition of attendees was broad, encompassing healthcare regulators, private and public healthcare providers, health insurance companies (HICs), revenue cycle management (RCM) companies, health information system (HIS) vendors, and third-party administrators (TPAs). This diversity enriched the data collection process and contributed to a well-rounded understanding of the healthcare ecosystem.

The mix of large, medium, and small hospitals and representation from the public and private sectors added another layer of comprehensiveness. This ensured that the preparation phase captured the varied dynamics and challenges across different organizational types.

- Roles and Influence of Participants

Participants spanned a wide array of roles within their respective organizations. Designations included medical directors, physicians, nurses, professionals in revenue cycle management, coding and health information management specialists, finance, billing, actuarial staff, and IT experts.

These roles were selected to ensure that influential stakeholders with decision-making authority and domain expertise were involved. These roles hold key decision-making and operational influence, making their input valuable for the current preparation phase and future engagement efforts. The presence of influential roles is critical as these individuals will play key roles in shaping their organizations' adoption strategies. Encouraging relationships with these stakeholders is anticipated to drive adoption in the marketplace and foster sustained engagement with CHI initiatives.

- Key Engagement Activities

Several structured activities underscored the preparation period:

- **Regulatory Alignment:** 5 regulatory entities participated in promoting transparency, equity, and value-based care, reflecting a concerted effort to align with national healthcare goals.
- **Workshops:** 50 workshops were conducted, covering various healthcare topics. These sessions facilitated knowledge sharing and collaborative learning among the 4,000 attendees.
- **Educational Materials:** More than 50 AR-DRG documents and education materials were developed and published, providing the market with the necessary knowledge, tools, and level of education to enhance understanding and readiness.
- **Shadow Billing Pilot:** 51 hospitals participated in the shadow billing pilot, offering valuable data and insights into data quality, billing practices, and systems readiness.
- **Digital Campaign:** 16 digital posts were generated and published to raise awareness and disseminate information about AR-DRG, leveraging digital platforms for broader outreach.
- **Grouper Software Certification:** Engagement with software technology vendors through workshops to guide them on the certification process.

- Strategic Value of Engagements

The engagement of a diverse and influential set of stakeholders provided vital insights and laid a foundation for sustained relationships. The involvement of key stakeholders across roles and sectors will be instrumental in future phases, enabling CHI to:

- Leverage their influence to drive adoption across the healthcare market.
- Ensure alignment with organizational readiness and market needs.
- Foster long-term collaborations that promote transparency and equity in healthcare practices.

For CHI, maintaining and strengthening connections with these stakeholders will help ensure alignment with market needs and drive widespread acceptance of its initiatives.

CHI has established a robust groundwork for driving transformative change in the marketplace and achieving strategic objectives by systematically engaging these stakeholders.

Stakeholder Mapping

	Standards Review & Recommendations	Clinical Coding & Documentation Preparedness	AR DRG Preparedness	Shadow Billing Pilot Implementation	Education & Awareness on Case-Mix and AR-DRG
CNHI	★				★
NHIC/SHC	★				★
SHDD (Saudi Health Data Dictionary)	★				★
MOH	★				★
Health Care Providers		★	★		
Market Reference Price Project				★	
Bundle Payments Project				★	
Health Insurance Companies				★	★
Insurance Authority				★	★

Enabling stakeholders to promote transparency, equity, and value-based care

3.2.1 Assessing Market Readiness

The market readiness assessment determined how prepared the target market is to adopt AR-DRG and transfer from the current payment system (fee-for-service) to the AR-DRG-based payment system. This assessment considered AR-DRG knowledge, Coding Systems, payment systems, and Standards. Market readiness was assessed using qualitative and quantitative research methods, including interviews with market stakeholders, surveys, and data analysis.

Key factors considered in the market readiness assessment are:

- **Standard and policies:** Identifying gaps in current standards and policies pertaining to Case-Mix.
- **AR-DRG Knowledge:** Assessing market knowledge related to AR-DRG.
- **Technology:** Assessing currently used technology.
- **Organizational readiness:** Assessing current organization structure and capacity.
- **Contracting:** Assessing the regulator's role in contracting for DRG reimbursement.
- **Claim Data:** Assessing NPHIES claims data and Grouped data.
- **Financial impact:** Assessment of submitted shadow claims.

3.2.2 Information Collection Methods

Different information collection methods ensured a comprehensive understanding of the market and stakeholders. These methods gathered qualitative and quantitative data, providing a balanced perspective.

3.2.2.1 Stakeholder Interviews

Interviews were conducted with key stakeholders, including Payers, Providers, Regulators, vendors, and key decision-makers. The interviews allowed for open-ended discussions while ensuring key topics were covered. The aim was to gather insights into:

- Stakeholder expectations and perceptions.
- Market challenges and areas for Improvement.
- Critical success factors for project implementation.

The insights from these interviews informed the project's strategic direction and provided a clearer understanding of stakeholders' needs and concerns.

3.2.2.2 Market Analysis

Market analysis was conducted to identify potential gaps in standards and definitions related to Case-Mix and data validation rules. The following artifacts have been considered:

- Minimum Data Set (MDS).
- KSA standards of cost/charge collection & reporting.
- ICD-10-AM Diagnosis classification and coding guidelines.
- ACHI, SBS, and coding guidelines.
- Statistical calculation methodology for cost, relative weights, and associated measures.

3.2.2.3 Benchmarking

Benchmarking involved identifying relevant countries undertaking similar initiatives and studying their methods, results, and challenges. The goal of benchmarking is to:

- Learn from countries that have successfully implemented a DRG system.
- Identify key performance indicators (KPIs) to drive the project's success.
- Avoid potential pitfalls by learning from previous efforts.

Benchmarking was done through research, including case studies, interviews, and available industry reports.

3.2.2.4 Surveys

Surveys were designed to collect quantitative data from the targeted market. Surveys gathered information related to coding, auditing, CDI, and AR-DRG implementation, including but not limited to:

- Departments, specialties, encounters, and discharge types.
- Coding status, coders' availability, education, training & development, productivity, backlog and audit.
- CDI specialist availability, workflow, and training.
- Physician coding.
- IT infrastructure: technology needs and digital maturity assessment.

3.2.3 Data Analysis Methods / Statistical Analysis

After the data had been collected through the above-mentioned methods, a robust data analysis process was employed. The data was analyzed using both qualitative and quantitative techniques. Quantitative survey data was analyzed using statistical tools such as Excel to generate insights.

Qualitative data from interviews and open-ended survey responses were categorized to inform the project's strategic direction.

3.2.4 Education and Workshops

In parallel with data collection and analysis, educational initiatives were implemented to ensure that key stakeholders have the knowledge and skills to engage with the project effectively. This included:

- **Education sessions:** to prepare the market on the minimum data set required for grouping of admitted care, standards in coding and auditing, NPHIES compliance, and clinical documentation improvement.
- **Workshops:** Interactive stakeholder workshops on case mix and AR-DRG, shadow billing framework, DRG reimbursement, DRG standards and regulations review, and Case-Mix Standards Harmonization.

These initiatives will foster engagement, build understanding, and ensure all involved parties are better prepared for the AR-DRG implementation across the private sector.

3.2.5 Desktop Research

Desktop research has formed the basis of a significant portion of the initial information-gathering phase. This involved reviewing secondary data sources such as:

- Healthcare market reports and market studies
- Academic articles and white papers
- Existing datasets

This research has helped build a foundational understanding of the market before engaging with primary research methods like interviews or surveys.

3.3 Overview of Project Workstreams

The project objectives were achieved by executing multiple workstreams simultaneously and leveraging global expertise in clinical documentation and coding, patient classification systems, and payment methodologies. The following table provides an overview of stakeholders, objectives, and deliverables by workstream.

	Project management, Governance & Change Management	Standards & Policies review and recommendations Workstream	Clinical Coding & Documentation preparedness Workstream
Stakeholders	<ul style="list-style-type: none"> ✓ CHI Project Team ✓ CHI Change Management Team ✓ CHI onboarding team ✓ CHI Communication Team ✓ CHI Executive Team 	<ul style="list-style-type: none"> ✓ CNHI / Casemix Center ✓ Saudi Health Council ✓ Healthcare Providers / Hospitals ✓ Health Insurances / Payers 	<ul style="list-style-type: none"> ✓ Healthcare Providers / Hospitals ✓ Health Insurances / Payers
Brief Objectives	<ul style="list-style-type: none"> ✓ Providing Project Management ✓ Monitoring, and controlling project activities ✓ Alignment, cooperation and engagement with CHI ✓ Constantly reviewing the priorities of requirements during implementation 	<ul style="list-style-type: none"> ✓ Identify and review national standards, policies and regulations related to casemix & relevant for a successful DRG implementation 	<ul style="list-style-type: none"> ✓ Assessment of market readiness for accurate and compliant clinical documentation and coding ✓ Support market stakeholders with extensive education and training
Major Deliverables	<ul style="list-style-type: none"> ✓ Project Implementation Plan ✓ Project Charter ✓ Resources Plan ✓ Governance Module ✓ Communications Plan ✓ Change Management process & Plan ✓ Risks Management 	<ul style="list-style-type: none"> ✓ Recommendations for updates to existing standards and for any necessary additions ✓ Engagement with key market stakeholders for completeness and transparency 	<ul style="list-style-type: none"> ✓ Market survey ✓ 20 Workshops on Coding Audit, MDS, NPHIES, CDI, and DRG grouping for admitted care
	AR DRG preparedness Workstream	Shadow billing implementation Workstream	Education and awareness of the market on case-mix and AR-DRG Workstream
Stakeholders	<ul style="list-style-type: none"> ✓ CNHI / Casemix Center ✓ Saudi Health Council ✓ Healthcare Providers / Hospitals ✓ Health Insurances / Payers ✓ Health Tech and Health IT Vendors 	<ul style="list-style-type: none"> ✓ Healthcare Providers / Hospitals ✓ Health Insurances / Payers 	<ul style="list-style-type: none"> ✓ Healthcare Providers / Hospitals ✓ Health Insurances / Payers
Brief Objectives	<ul style="list-style-type: none"> ✓ Ensure transparency and help with market preparedness by providing relevant information and tools for a compliant and successful DRG implementation 	<ul style="list-style-type: none"> ✓ Simulate AR-DRG based payment for admitted care 	<ul style="list-style-type: none"> ✓ Ensure market awareness and competency on the topics of Coding & Grouping, Coding Audit & CDI ✓ Enhance the market knowledge on AR-DRG and the necessary steps for a successful DRG implementation
Major Deliverables	<ul style="list-style-type: none"> ✓ Comprehensive information materials published on CHI web portal ✓ Certification process and tools for compliance with AR-DRG and SBS methodology ✓ Helpdesk set up and helpdesk process implementation 	<ul style="list-style-type: none"> ✓ Design of a local shadow billing framework ✓ Guidance for contracting for DRG reimbursement ✓ Financial analysis report on shadow billing claims ✓ Recommendations to the pricing framework and operational guidelines 	<ul style="list-style-type: none"> ✓ Market awareness sessions and educational workshops ✓ Step-by-step guide to implement AR-DRG ✓ Digital market campaigns

4 Findings and Challenges of Implementing AR-DRG and Shadow Billing

4.1 Introduction

The preparation of the market for implementing AR-DRG and shadow billing in the Saudi healthcare private sector revealed several critical insights, particularly regarding market readiness, challenges, market standards, and areas of improvement. These findings inform the recommendations for implementing AR-DRG and Shadow Billing in the near future.

4.2 Market Readiness and Awareness

- **Variable Awareness Levels:** There is uneven awareness of AR-DRG and shadow billing among private sector stakeholders, particularly between providers, payers, and Grouper vendors.
- **Workforce Gaps:** Insufficient numbers of trained coders and CDI specialists limit the capacity of many providers to meet AR-DRG requirements.
- **Provider Diversity:** The Saudi private sector encompasses providers of varying sizes, specialties, and resources, leading to inconsistent levels of preparedness.

4.3 Gaps in Standards and Policies Pertaining to DRG-Based Payment

- **Inconsistencies in applying current standards:** The existing national standards are applied with significant variation for clinical coding, reimbursement, and CMI calculation across facilities. Key gaps include:
 - Incomplete adoption of clinical coding rules for **ICD-10-AM**, **ACHI**, **SBS**, and other internationally accepted standards.
 - Lack of uniform application of guidelines for coding, especially the choice of principle diagnosis and assignment of the secondary diagnosis, leading to discrepancies in DRG assignment.
 - Not fully formalized update and maintenance cycles for ICD10-AM, SBS, and coding standards, causing inconsistent practices in some facilities.

4.4 Case-Mix Index Challenges

- The case-mix index (CMI), a critical measure of patient care complexity and resource intensity, is not consistently calculated or used.
- Providers lack clarity on how CMI is linked to reimbursement, resulting in underutilization of this metric for performance and financial benchmarking.
- The recalibration process of relative weights is not well understood by the market, leading to inconsistency in adopting new medical technologies within Case-Mix calculation. The market reference price (MRP) project has shared the methodology and has started to address this topic in alignment with the Shadow Billing pilot phase of the AR-DRG implementation project.

4.5 Minimum Data Set (MDS) Gaps

- **Data Quality Deficiencies:** Many providers fail to meet the requirements of the MDS for AR-DRG grouping, such as:
 - Incomplete and/or not mandatory administrative and clinical attributes (e.g., principal diagnosis, secondary diagnosis, procedures codes, discharge status, and discharge date).

4.6 Financial Implications

- Applying AR-DRG reimbursement parameters using MRP-developed base rates and relative resource weight would decrease payments for admitted care episodes. The financial impact analysis is based on data covering a limited period with significant data limitations
- The financial modeling is based on historical data; however, CDI Initiative and Clinical Coding Audit will significantly improve coding practices in a DRG environment, leading to corresponding changes in the overall financial impact.
- The significant changes in data submissions with the implementation of MDS in NPHIES will help address the identified gaps and may lead to notably different financial outcomes. Once improved data has been collected, financial modeling will need to be performed. The current results should not be used for making financial decisions but should be viewed as a tool for education and raising awareness in the market.

4.7 Infrastructure and Technology

- **Inadequate IT Systems:** Many healthcare providers lack modernized systems capable of handling AR-DRG coding, grouping, and reporting.
- **Data Validation Challenges:** Inconsistent clinical data validation leads to claims submission errors and impacts shadow billing accuracy.

Current Australian IHACPA Certification Vendor: a local enhanced certification process is required to comply with SBS and enable providers and payers to acquire AR-DRG grouping software in preparation for the next phase of shadow billing and, ultimately, full implementation and integration into their operational processes.

4.8 Stakeholder Collaboration and Communication

- **Fragmented Engagement:** Limited collaboration among providers, payers, and regulatory bodies has hindered alignment on key objectives and standards.
- **Resistance to Change:** Concerns about increased administrative burdens, operational disruptions, and financial risks have slowed stakeholder buy-in.
- **Timeliness and Frequency of Communication:** There has been limited communication with the market about implementing AR-DRG and its benefits to providers and payers.

5 Recommendations for Operational Readiness

5.1 Introduction

A structured plan, crucial for addressing the identified gaps in readiness, standards, and infrastructure, is the cornerstone of our recommendations for implementing AR-DRG and shadow billing. These recommendations are designed to enhance preparedness, standardization, and capacity while ensuring stakeholder engagement and financial sustainability.

5.2 Market Readiness and Awareness

- **Education:** Improve awareness and knowledge by providing education sessions, materials, and digital campaigns to educate the market on the importance of Implementing AR-DRG and Shadow Billing.
- **Capacity Building:** Encourage providers to build a highly skilled and trained internal DRG team (Coding, CDI specialist, clinical roles, RCM, and others) to manage AR-DRG-related activities and the transition period of mandating AR-DRG.
- **Continuous Workforce Development through Institutionalized Training Programs**
 - Set up CHI accredited certification programs in clinical coding, CDI, and AR-DRG systems to the market.
 - Develop e-learning platforms for ongoing education materials in coding standards and documentation practices.
 - Arrange regular interactive workshops and seminars on specific topics

5.3 Addressing Gaps in Standards

To resolve inconsistencies in national case-mix and coding standards, the following actions are to be considered:

- **Standardization:** enforce adoption, up-to-date national guidelines for ICD-10-AM, ACHI, SBS and case-mix classifications.
- **Maintenance Cycles:** Establish an explicit schedule and procedures for updating coding and grouping standards to ensure alignment with international best practices (governance of each artifact).
- **Harmonization:** Collaborate with regulatory bodies to align case-mix standards with other national health regulations to avoid conflicts and duplication.
- **Terminologies and Classification Governance Committee:** A permanent body that represents all stakeholders and is appointed to carry out the above interventions.

5.4 Enhancing the impact of the Case-Mix Index (CMI)

- **Capacity Building:** Educate providers on the importance of CMI as a performance and financial metric.
- **Data Transparency:** Improve transparent reporting of case-mix data to facilitate benchmarking and financial planning.

- **Performance Monitoring:** Use case-mix information to evaluate provider efficiency and align it with reimbursement models to incentivize high-quality care.

5.5 Strengthening the Minimum Data Set (MDS)

- **Data Quality Improvements:** Conduct targeted workshops and audits to ensure providers collect and report all required MDS attributes.
- **NPHIES Integration:** Work closely with providers to align their systems with NPHIES requirements, ensuring seamless data exchange for SBS coding and AR-DRG grouping.
- **Refinement of MDS fields:** Refine and update MDS fields to improve detailed analysis of the population and burden of illness and optimize healthcare.
- **Strengthen MDS Governance:** Provide clear oversight of MDS changes and their implementation into NPHIES processes.

5.6 Financial Impact Management

- **Shadow Billing Refinement:** Use the shadow billing period to identify discrepancies, educate providers about data completeness, refine reimbursement frameworks, and address provider concerns.
- **Budget Neutral Impact Mitigation:** Conduct regular financial modeling to ensure fair premium adjustments, budget neutrality, and market stability during the transition.

5.7 Technology Alignment with AR-DRG-Based Payment Requirements

- **System Upgrades:** Encourage investment in health IT solutions that support advanced coding, grouping, and reporting functionalities (e.g., grouping software, coding software, CDI automation).
- **Validation Tools:** Encourage providers to invest in real-time clinical code validation tools to improve claim submission accuracy. Data validation must be implemented in NPHIES to ensure consistency in capturing data submissions and collection.
- **Certification Process:** Implementing a robust certification process for vendors to ensure their tools perform according to the specified standards.

5.8 Stakeholder Engagement and Collaboration

- **Governance:** Establish a central committee involving all key stakeholders to oversee AR-DRG and shadow billing implementation.
- **Transparency:** Communicate progress, challenges, and benefits regularly to build stakeholder confidence and reduce resistance to change.
- **Change Management:** Establish a sounding board to inform and socialize AR-DRG and Shadow Billing involving key stakeholders.

6 Roadmap and Change Management Plan

6.1 Introduction

Implementing AR-DRG and Shadow Billing systems involves both short-term and long-term planning stages. These roadmaps guide the adoption and integration of AR-DRG into healthcare systems, ensuring accurate patient classification, efficient resource utilization, and improved patient care.

6.2 Short-Term Stage (12 Months)

The successful completion of the preparation phase for implementing the AR-DRG and shadow billing is a testament to the collaborative efforts and unwavering dedication of the Solventum team. Their multidisciplinary skills and expertise have been instrumental in laying a solid foundation for the initiative.

The Solventum team demonstrated exceptional commitment to ensuring the project's readiness, guiding the CHI team through weekly and monthly internal meetings, making regular presentations at committee meetings and town halls, and supporting all external communications. By fostering team building and alignment, we have cultivated a shared vision and collaborative spirit among all stakeholders, creating a robust framework for the pilot's success.

Through targeted support and cross-functional coordination, Solventum has ensured that the AR-DRG and shadow billing pilot integrates with and complements other ongoing projects. This alignment minimizes disruptions and maximizes the collective impact of the various initiatives.

Leveraging our extensive experience in comparable healthcare transformation projects, Solventum brought deep insights into project planning and execution. This experience was pivotal in proactively addressing challenges, mitigating risks, and ensuring adherence to the short-term roadmap.

The preparation phase reflects Solventum's ability to drive complex projects to fruition with precision, collaboration, and a results-oriented approach. This foundation positions the AR-DRG and shadow billing for successful implementation and lasting impact in optimizing healthcare delivery and financial management.

This phase underscores our shared commitment to excellence, innovation, and sustainable progress, ensuring that this initiative achieves its immediate objectives and sets the stage for long-term success. This commitment inspires us to push the boundaries and make a lasting impact in healthcare delivery and financial management.

The Short-term plan has been implemented in 2024 and includes:

6.2.1 Gap Analysis

- [Standard, Policies, and Case-Mix Gaps Assessment](#)
- [Evaluations of readiness in coding, CDI, and infrastructure](#)

6.2.2 Education Materials

- [AR-DRG Awareness Workshop](#)
- [AR-DRG Grouping Workshop](#)
- [Clinical Coding Audit Workshop](#)
- [CDI Workshop](#)
- [MDS and NPHIES Compliance Workshop](#)
- [Coding Interactive Workshop](#)
- [Summary AR-DRG Implementation Plan](#)
- [Detailed AR-DRG Implementation Plan](#)
- [AR-DRG Shadow Billing & Reimbursement Workshop](#)
- [Shadow Billing Playbook](#)
- [AR-DRG Shadow Billing Pilot Kick-Off Workshop](#)
- [Grouper Vendor Certification Workshop – Vendor Version](#)
- [Grouper Vendor Certification Workshop – CHI Version](#)

6.2.3 Capacity Building

- [AR-DRG Awareness Feedback Report](#)
- [AR-DRG Grouping and Coding Interactive Feedback Report](#)
- [CDI and Clinical Coding Audit Feedback Report](#)
- [MDS and NPHIES Compliance Feedback Report](#)
- [AR-DRG Shadow Billing and MRP Workshop Feedback Report](#)
- [AR-DRG Reimbursement Feedback Report](#)
- [AR-DRG- Shadow Billing Providers Feedback Report](#)
- [AR-DRG Shadow Billing Payers Feedback Report](#)

6.2.4 Shadow Billing Pilots

- Preparation for Shadow Billing Pilot
 - [Shadow Billing Framework](#)
 - [Support Contracting \(Global benchmarks on DRG contracting\)](#)
 - [Shadow Billing Performance metrics](#)
 - [Shadow Billing DRG Calculator](#)
- Results of Shadow Billing Pilot:
 - [Final Report](#)

6.2.5 Strengthen Communication and Stakeholder Engagement

- Develop Communication Tools:
 - [FAQ Standards & Policy Review and Certification Workshops](#)

- [FAQ Coding and Grouping and Interactive Workshop](#)
- [FAQ CDI Audit Workshop](#)
- [FAQ MDS Workshop](#)
- [FAQ Awareness Workshop](#)
- [FAQ Coding and Grouping and Interactive Workshop](#)
- Establish Helpdesk Support:
 - [Helpdesk User Manual](#)
 - [Helpdesk Escalation Process](#)
 - [Support Tickets Management](#)
- Digital Campaign
 - [Digital Campaign Artwork](#)
 - [Digital Campaign Report](#)

6.2.6 Grouper Vendor Certification

- [Grouper Vendor Certification Tool Manual](#)
- [Grouper Vendor Certification Process- Vendor Version](#)
- [Grouper Vendor Certification Process – CHI Version](#)
- [Grouper Vendor Post Certification Survey](#)

6.2.7 Change Management

- [Change Management Plan](#)
- [Sounding Board Strategy Overview](#)

6.3 Long-Term Stage – Roadmap (12–36 Months)

The long-term roadmap for implementing AR-DRG and shadow billing is a strategic framework to ensure sustainable healthcare delivery and financial management transformation. It represents a commitment to building a robust, adaptable system that evolves with the needs of the healthcare sector, paving the way for improved efficiency, transparency, and quality of care.

This roadmap focuses on achieving long-term success through phased implementation, capacity building, and continuous improvement. It emphasizes fostering stakeholder collaboration, enhancing system capabilities, and aligning with organizational and national healthcare objectives. The roadmap aims to create a cohesive approach to healthcare reforms by prioritizing integration with existing systems and ensuring interoperability.

Key elements include developing a resilient infrastructure, governance mechanisms, and a culture of data-driven decision-making. The roadmap also highlights the importance of leveraging lessons learned from comparable projects and building on the strengths of the preparation phase to mitigate risks and address challenges effectively.

The long-term roadmap focuses on scalability and sustainability and establishes a foundation for ongoing innovation and adaptability, ensuring the system remains relevant and effective in meeting future healthcare demands. This strategic approach is vital to realizing a comprehensive, efficient, patient-centered healthcare ecosystem.

6.3.1 High-level Implementation Roadmap

This roadmap outlines a comprehensive strategy to achieve and enhance market readiness, address healthcare standard gaps, and improve system efficiency through targeted initiatives. It focuses on building capacity, fostering collaboration, and adopting robust financial and technological frameworks to drive progress in healthcare management. Key areas of development include:

1. **Continued Market Readiness and Awareness:** Emphasizing capacity building through e-learning platforms, workshops, and institutional partnerships, this phase focuses on resource development and role-based education.
2. **Addressing Gaps in Standards:** Aims to establish robust policies and governance structures for coding standards, DRG groupers, and reimbursement guidelines, ensuring periodic updates and alignment with technological advancements.
3. **Enhancing the Case-Mix Index (CMI):** Focuses on education, transparency, and performance monitoring through open data sharing and key performance indicators (KPIs).
4. **Strengthening the Minimum Data Set (MDS):** Includes quality improvements, integration with NPHIES, and field refinements for detailed population analysis and healthcare optimization.
5. **Financial Impact Management:** Introduces shadow billing, financial modeling, and premium adjustments to maintain market stability and ensure budget neutrality.
6. **Infrastructure Alignment with AR-DRG Payment Requirements:** Promotes investments in advanced systems and tools to enhance data accuracy, validation, and reporting processes.
7. **Stakeholder Engagement and Collaboration:** Highlights change management and knowledge sharing through forums involving key stakeholders for a seamless transition to AR-DRG systems.
8. **Future Enhancements:** Plans for 2025-2026 include developing KSA-DRG systems, piloting ambulatory bundles, and implementing performance-based payment mechanisms.



The long-term roadmap provides a clear and actionable framework for transforming healthcare systems, ensuring readiness for future challenges, and delivering equitable, high-quality care. This will lead to a more robust, transparent, and efficient healthcare system benefiting all stakeholders. The following elements will be positively impacted:

- **Enhanced Operational Efficiency:**

Streamlined processes, robust systems, and updated standards will improve workflow efficiency and decision-making, leading to consistent and reliable practices.

- **Financial Sustainability:**

Budget neutrality and balanced premiums ensure market stability while fostering equitable reimbursement practices.

- **Data Quality and Transparency:**

Advanced validation tools and detailed reporting promote transparency, reliability, efficiency, and accuracy in healthcare data handling.

- **Improved Stakeholder Collaboration:**

The active participation of stakeholders and knowledge sharing ensures the alignment of goals, fosters innovation, enhances trust, and promotes a collaborative environment.

- **Adaptability to Technological Advancements:**

The roadmap's phased approach incorporates emerging technologies and continuous improvement.

- **Patient-Centric Outcomes:**

By optimizing healthcare delivery through data-driven insights, the plan ensures better population health management and improved patient care. Focusing on quality and performance-based payments enhances patient outcomes and care standards.

- **Global Alignment and Competitiveness:**

Standardization and localization efforts enable alignment with global benchmarks, positioning the healthcare system as a regional leader.

6.3.2 Detailed Implementation of the Roadmap

Detailed Implementation Roadmap

Initiatives	Continued Market Readiness and Awareness	What	When	How
		<ul style="list-style-type: none"> • Capacity Building. • Develop e-learning platforms. • Arrange regular interactive workshops and seminars. • Set up an academic institution. 	Q1-25	<ul style="list-style-type: none"> • Identifying resources and assigning roles. • Utilizing the educational materials and publishing them. • Creating a yearly curriculum for each key role. • Setting up a partnership.
	Addressing Gaps in Standards	<ul style="list-style-type: none"> • Standardization and enforcement of Adoption of standards and policies. • Establish maintenance-defining cycles to regularly update coding standards, DRG groupers, and reimbursement guidelines. • Harmonization and alignment involving stakeholders in periodic reviews to address emerging challenges and technological advancements. 	Q1-25	<ul style="list-style-type: none"> • Terminologies and Classification Governance Committee: A permanent body representing all stakeholders.
	Enhancing the Case-Mix Index (CMI)	<ul style="list-style-type: none"> • Capacity Building. • Data Transparency. • Performance Monitoring. 	Q1-25 Q3-25 Q3-25	<ul style="list-style-type: none"> • Repeating the education cycle of the 2024 project. • Creating open-data reports for the market and sharing datasets. • Establishing KPIs based on CMI and benchmarking within the market.
	Strengthening the Minimum Data Set (MDS)	<ul style="list-style-type: none"> • Data Quality Improvements. • NPHIES Integration. • MDS field Refinement. 	Q1-25 Q1-25 Q1-25	<ul style="list-style-type: none"> • Backward-compatible minimal updates that keep up with information requirements. • Continue integrating and updating MDS and standards as needed. • Updating MDS fields to improve detailed analysis of the population and burden of illness and optimize healthcare.

Detailed Implementation Roadmap

	What	When	How
Financial Impact Management	<ul style="list-style-type: none"> Shadow Billing Refinement. 	2026	<ul style="list-style-type: none"> Providing shadow billing support for the entire private provider and payer market when significant changes in MDS, standards, and grouper versions occur.
	<ul style="list-style-type: none"> Funding rules and pricing framework. 	Q4-25	<ul style="list-style-type: none"> Continually run financial modeling for various scenarios of funding or pricing components as intended for adoption. The financial modeling should be revised using updated and reliable data, following MDS updates, incorporating stakeholder feedback, and ensuring the alignment of funding or pricing components intended for adoption.
	<ul style="list-style-type: none"> Mitigation of Financial impact on provider revenue and health insurance premiums. 	Q4-25	<ul style="list-style-type: none"> Conducting regular financial modeling to ensure fair premium adjustments, budget neutrality, and market stability during the transition. Continually balance premium with reimbursement to obtain market stability.
	<ul style="list-style-type: none"> Entire private market Shadow Billing. 	Q1-25	<ul style="list-style-type: none"> Using lessons from pilot projects to implement shadow billing across all providers in phases. Finalizing and disseminating clear guidelines for DRG pricing, funding rules, and relative weights.
Technology Alignment with AR-DRG-Based Payment Requirements	<ul style="list-style-type: none"> Upgrade Systems and tools. 	Q1-25	<ul style="list-style-type: none"> Promoting investments in advanced systems capable of handling AR-DRG grouping, coding, and reporting.
	<ul style="list-style-type: none"> Promote Validation Tools. 	Q3-25	<ul style="list-style-type: none"> Implementing real-time validation. Tools to ensure data accuracy in claims submissions, including standard edit sets. NPHIES Data validation.
	<ul style="list-style-type: none"> Maintain Certification Process. 	Q2-25	<ul style="list-style-type: none"> Establishing an explicit schedule for updating.
Stakeholder Engagement and Collaboration	<ul style="list-style-type: none"> Change Management. 	Q1-25	<ul style="list-style-type: none"> Sounding Board. Moderating feedback, capturing the views and thoughts of a representative group of stakeholders. Overseeing AR-DRG and shadow billing implementation (involving all key stakeholders).
	<ul style="list-style-type: none"> Transparency. 	Q2-25	<ul style="list-style-type: none"> Facilitating knowledge sharing. By creating forums for stakeholders to share best practices, challenges, and solutions during the AR-DRG transition.

Detailed Implementation Roadmap

Initiatives	What	When	How
Innovative Payment Models for Healthcare	<ul style="list-style-type: none"> Payment for non-admitted care bundles. Quality and performance-based payment for admitted care. Definition of care bundles (episodic and/or longitudinal). 	2026 2026 2026	<ul style="list-style-type: none"> Developing standardized care bundles for outpatient services with fixed pricing to streamline payments and improve efficiency. Implementing a payment model that links hospital reimbursements to quality metrics and performance outcomes. Creating standardized episodic (short-term) and longitudinal (chronic) care bundles to ensure cost-effective, consistent, and high-quality care delivery.
Develop KSA-DRG	<ul style="list-style-type: none"> KSA DRG development/localization. Ambulatory bundle piloting. 	Q3-25 Q3-25	<ul style="list-style-type: none"> Promoting investments in local DRG expertise and preparation for advanced systems capable of handling DRG system simulations, updates, and maintenance. Implementing real-time validation Tools to ensure data accuracy in claims submissions. NPHIES Data validation.

Mandating Clinical Coding Audit 2025

Mandating CDI 2025

Mandating Shadow Billing for the Full Private Market 2025

Mandating KSA-DRG 2027



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