



Ghana



India



Indonesia



Kenya



Malaysia



Mali



Nigeria



The Philippines



Thailand



Vietnam



Joint Learning Network  
FOR UNIVERSAL HEALTH COVERAGE

## Determining Common Requirements for National Health Insurance Information Systems

January 17, 2012

### MAIL

PO Box 900922  
Seattle, WA 98109 USA

### STREET

2201 Westlake Avenue, Suite 200  
Seattle, WA 98121 USA

Tel: 206.285.3500  
Fax: 206.285.6619  
[www.path.org](http://www.path.org)



## Determining Common Requirements for National Health Insurance Information Systems

This work is licensed under the Creative Commons Attribution-ShareAlike 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA. The content in this document may be freely used in accordance with this license provided the material is accompanied by the following attribution: “From the Collaborative Requirements Development Methodology and Common Requirements for National Health Insurance Information Systems. Copyright © 2012 Program for Appropriate Technology in Health (PATH), PharmAccess Foundation Public Health Informatics Institute, and the University of Hawaii.”

Suggested citation: PATH. *Determining Common Requirements for National Health Insurance Information Systems*. Seattle: PATH; 2012.

This project was supported through a grant from The Rockefeller Foundation.

## Table of Contents

Preface.....	iv
List of abbreviations .....	vii
Project partners .....	viii
Partner principles .....	x
Project team contact information .....	xii
Acknowledgments.....	xiii
Expert contributors.....	xiii
Core work group.....	xvi
Project technical team .....	xvi
Executive summary.....	xvii
The need.....	1
Developing functional requirements.....	6
CRDM: a tool for achieving greater health impact .....	6
The process framework: What does a health insurance information system need to cover?.....	7
The business process matrix and glossary: What are the inputs to the system and how can we develop a common language for countries to use? .....	9
Activity task flows and field validations: How does the system work in practice and are there common elements?.....	11
User and systems requirements: the JLN country members detail the common information system requirements for four processes and encourage the team to move forward faster. ....	14
Applying requirements at a practical level.....	17
Conclusions.....	20
References and additional resources .....	20
Appendix A: Business process matrix .....	1
Appendix B: Glossary of health insurance terms .....	1
Appendix C: Task flow diagrams .....	1
Appendix D: Glossary of business process and systems engineering terms .....	1
Appendix E. User and system requirements .....	1

## Preface

Policymakers and technical experts who are grappling with implementing national health insurance information systems should read the following pages with interest. This document was created as a tool to bridge the language and discipline of global health with the language and discipline of software and system engineering. This report provides a set of practical **common** information, tools, and resources, which country decision-makers can access as they develop national-level health insurance information system plans. The document has two main sections (1) Information on some of the common information technology support **needs** required by the Joint Learning Network members and (2) functional **requirements** for information systems produced through application of the collaborative requirements development methodology (CRDM). A second report—*Promoting Interoperability of Health Insurance Information Systems through a Health Data Dictionary (HDD)*—is an accompanying primer to this report and can be used as a starting point by countries to develop or refine country-specific health insurance architectures through implementation of an health data dictionary.

Produced for the Joint Learning Network Information Technology Track under Phase 1 of a grant from The Rockefeller Foundation, the tools developed and described in these two reports are intended as **initial starting points** and **checklists**. Countries can utilize them when grappling with country-specific challenges being faced as information systems are adapted or built to support national health insurance systems. These documents and tools will be neither comprehensive nor complete until countries have had a chance to use and react to them during Phase II of the grant (to commence in the first half of 2012.) They will be updated periodically by the partners as countries use them and provide feedback. They will then be published and made available on [www.jointlearningnetwork.org](http://www.jointlearningnetwork.org).

This document and the accompanying tools it contains are a set of insurance process models, diagrams, and requirements that were produced as a result of CRDM being applied to health insurance and more specifically to enrollment, eligibility checking, claims processing, and preauthorization. These artifacts are intended to be useful in discussions between health professionals and developers of health insurance information systems. This document is not intended to be a definitive authority on the discipline of health insurance, nor does it intend to provide guidance on how to design, organize, or manage health insurance functions within a country. This work was informed by health insurance experts from around the globe. The references and additional resources section of this report present some of the work of these experts in the health insurance domain.

This document is designed to be both a road map and a tool. It serves as a road map for helping country decision-makers move toward the vision of an effective national health insurance information system based on a common starting point and language as expressed in this document. At the same time, it is a tool for structuring specific implementation projects, informing vendor requests for proposals, and self-assessing existing national health insurance information system capabilities. It provides a methodology that can be applied to additional areas of health insurance, health financing, or, more broadly, to other health domains as well.

## Determining Common Requirements for National Health Insurance Information Systems

What is meant by the term “health-system domain”? Health systems across the world share many common characteristics. When working to strengthen national health information systems, it is useful to have a conceptual model that represents the major functions of a health system that are called domains. A domain represents a set of processes and activities that naturally occur together or are enough alike that working with them as a set is efficient. Describing a set of interrelated domains is referred to as a domain reference model. It is not intended to be prescriptive, but rather it is intended to help those who are working on parts of the health information system to understand their work in relation to the other parts of the health system. In this way, the domain reference model provides a useful way to focus and organize work and contribute deliverables that fit within a larger body of work.

The health domain reference model below (see Table 1) represents a working model that was drafted in a technical consultation convened by the World Health Organization and Health Metrics Network and hosted by PATH in Seattle, Washington, in September 2008. The model continues to evolve based on the review and feedback among leaders and experts in health information systems. For the purposes of this project, we are focused on health financing and in particular health insurance, which is one of the ten domains in this evolving model. To help describe each of the domains in the reference model, two examples of functional processes are listed in the second column for each domain. Listed in the third column are likely users that perform work in the domain. Many well-described sectors of the global economy like manufacturing, retail, pharmaceuticals, and the financial sector have benefited from well-described domain reference models. One of the purposes of the domain reference model is to support communication and collaboration across projects that have the shared objective to produce architectures and solutions to be reused for the benefit of the broader community. An additional purpose of a domain reference model is to identify relationships between domains that should be considered when designing information systems. In the case of health financing, it is clear that many relationships exist with the other domains of the health system that will be significant to the people designing national health information systems.

Table 1. Evolving health system domain reference model

Functional domain	Sample processes	Typical users
Community services	Patient registration Patient case management	Health care worker Supervisor
Facility services	Patient registration Birth registration	Health care worker Surveillance officer
Laboratory services	Specimen collection Result reporting	Health care worker Laboratory technician
Human resources	Create new position Transfer employee	Human resource officer District manager
Supply chain	Order medicines Store medicines	District manager Storekeeper
Finance and insurance	Enroll members Verify coverage	Registration clerk Receptionist
Management and planning	Produce monitoring and evaluation indicator reports Create annual operating plan	District manager National monitoring and evaluation manager

Functional domain	Sample processes	Typical users
Environmental services	Map water quality and access Map sanitation resources and access	District manager Surveillance officer
Knowledge and information	Create care-delivery protocols Access research and protocols	Program manager District health officer
Infrastructure management	Manage cold chain equipment Create facility construction plan	National Expanded Programme on Immunization manager Program manager

It is the authors' hope that as readers digest the following pages, they find value both in the common requirements and in the application of CRDM to create more specific requirements that respond directly to develop national-level health insurance information systems. Furthermore, as other health system domains evolve in a country, CRDM can enable the linkages between health information systems by initiating clear requirements and descriptions for each system contributing to a national-level health enterprise architecture.

## List of abbreviations

The following are a list of abbreviations used in this report. A complete and searchable glossary of terms used in national health insurance was developed under this project. Please visit <http://www.jointlearningnetwork.org/health-insurance-glossary> for more information.

COTS	Commercial Off-the-Shelf or Commercially available Off-the-Shelf
CRDM	Collaborative Requirements Development Methodology
DRG	Diagnosis-Related Group
HIS	Health Information Systems
HFMIS	Health Finance Management Information Systems
HMIS	Health Management Information Systems
HMN	Health Metrics Network
ICD	International Statistical Classification of Diseases
ICT	Information and Communication Technology
IT	Information Technology
JLN	Joint Learning Network
MOH	Ministry of Health
MOU	Memorandum of Understanding
NGO	Nongovernmental Organization
NHIS	National Health Insurance Information System
NHSO	National Health Security Office
PHII	Public Health Informatics Institute
R4D	Results for Development Institute
RFP	Request for Proposal
ROI	Return on Investment
SLA	Service-Level Agreement
SME	Subject-Matter Expert
TCO	Total Cost of Ownership
UNICEF	United Nations Children's Fund
USAID	US Agency for International Development
WHO	World Health Organization
WHO/HMN	World Health Organization/Health Metrics Network

## Project partners

With significant support from The Rockefeller Foundation and Results for Development Institute, three organizations and one senior advisor formed the core of the Phase I project team.

### PATH

PATH creates sustainable, culturally relevant solutions that enable communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, we help provide appropriate health technologies and vital strategies that change the way people think and act. Our work improves global health and well-being.

Since its inception in 1977, PATH has excelled at developing, adapting, transferring, and advancing health technologies for use in resource-poor settings. We have also developed and implemented tools and techniques for introducing, using, monitoring, and evaluating such technologies. PATH's central goal is to make appropriate and affordable technologies available to developing countries in an economically and socially sustainable manner and ensure effective introduction and use in diverse low resource settings including urban, rural, and remote areas. PATH has developed deep expertise in mapping health systems and collaborating with global and national health leaders to develop information and communication technology requirements for country and global applications. PATH is an active collaborating partner of the World Health Organization (WHO) and the Health Metrics Network (HMN) to assist countries with strengthening their health and health information systems. This experience was applied in partnership with Public Health Informatics Institute over the past few years to develop user requirements for information and technology systems in the supply chain domain. PATH and the Public Health Informatics Institute collectively have developed and applied the collaborative requirements development methodology process by working with global stakeholders, and then validating implementation in four countries. The requirements produced from this process were globally endorsed by WHO and are now being used by a number of African<sup>1</sup> ministries of health to develop global supply-chain tenders.

### PharmAccess Foundation

PharmAccess is a Dutch not-for-profit organization dedicated to the strengthening of health systems in sub-Saharan Africa. Its ultimate goal is to improve access to quality basic health care including the treatment of HIV/AIDS. PharmAccess supports programs and offers services in the areas of medical and administrative capacity-building, health insurance, HIV/AIDS and health care workplace programs, health investments, and health intelligence.

---

<sup>1</sup> At the end of 2011, Rwanda, Zambia, Tanzania all developed national-level plans based on the global-level supply chain requirements work developed under the collaborative requirements development methodology. Ethiopia is planning to develop a similar process in 2012.

PharmAccess has experience with developing and implementing health insurance schemes in Kenya, Namibia, Nigeria, and Tanzania. Currently more than 100,000 people are enrolled in these programs. In addition, PharmAccess has been a consultant to the Ghanaian National Health Insurance Authority. Each of these programs has a major information and communication technology component to them in areas such as eligibility (re-)enrollment, premium collection, claims adjudication and processing, provider reimbursement, and health intelligence.

PharmAccess works closely with its partner organizations the Health Insurance Fund, the Medical Credit Fund, and the Investment Fund for Health in Africa. Recently PharmAccess established a partnership with the Council for Health Service Accreditation of Southern Africa and the Joint Commission International to provide quality standards for resource-poor settings; this partnership is called SafeCare. The PharmAccess health insurance programs are funded by the Dutch government, the US Agency for International Development, the World Bank, and the local government of Kwara State in Nigeria.

### Public Health Informatics Institute

The Public Health Informatics Institute (PHII or the Institute) is an independent, nonprofit organization dedicated to improving the performance of the public health system by advancing public health practitioners' ability to strategically manage and apply health information systems. PHII is a program of the Task Force for Global Health, established in 1984. The Institute translates best practices from the information technology industry into methods and tools that public health agencies can use in addressing their information challenges. PHII works collaboratively with public health agencies to clarify the value of information solutions, define the work of public health through a practical application of business process analysis and requirements specifications, and formulate realistic approaches to guiding and measuring performance improvement. The Institute's approach and methodologies help public health agencies understand their information needs and develop more effective information systems.

### Dennis J Streveler PhD, Senior Advisor

Dr. Streveler is currently a professor of medical informatics at the University of Hawaii, Honolulu. Professor Streveler founded the multidisciplinary PhD program in biomedical informatics at that institution. He has consulted in more than 60 countries in every region of the world as lead health management information system consultant to the World Bank, as eHealth advisor to WHO, and as consultant to the Asian Development Bank. His specialty is health insurance information systems and its links to provider information systems.

Dr. Streveler has also worked in Silicon Valley as senior strategist at WebMD and as chief technology officer at AnimaTek International. He was formerly national technology projects manager at Kaiser-Permanente, Oakland, CA. Dr Streveler received his PhD in medical information science from the University of California at San Francisco medical school and his MS in computer science from the University of Hawaii.

## Partner principles

The approach taken is sometimes as important as the goal achieved. The principles that guided the work developed in this report and the accompanying health data dictionary primer (HDD) are the following:

**Project is driven by countries not consultants.** Our approach is collaborative and iterative: working with countries. Our role is to facilitate and link practitioners together and to support regional and national institutions to develop long-term capacity.

**Do not reinvent the wheel.** Understand and document existing work being done in countries, fill potential gaps, and link members together to learn from one another.

**Users should drive design.** Focus first on functional and logical system design—what users need the system to do—before selecting the physical and technical structure.

**Global informs common and common informs global.** Country-specific solutions will inform global requirements and vice versa. Countries can learn from sharing solutions with one another and may be able to leverage common solutions.

**New systems may not be the answer.** In many Joint Learning Network (JLN) member countries, existing systems (often referred to as “legacy systems”) are in use today. Countries will decide whether they want a new system to replace what they have or if they want to leverage existing systems and focus on interoperability issues. We do not assume that a new information technology system is always the correct answer.

**Available to all.** What we develop has been and will continue to be shared with any JLN member country interested in the work, as well as nonmember countries. Intellectual property produced under the track is owned by the members, and all final products are posted on the [JLN IT Technical Tracks page of the JLN’s website](#), under “Tools.”

**The end is the beginning.** Development of global common requirements and standards is just the initial step in supporting countries. The track also aims to work with countries to develop country-specific requirements and provide targeted assistance on issues of greatest interest to JLN members. Furthermore, the track pledges to support the following principles developed during the November 2011 donor/nongovernmental organization meeting at Greentree in which Rockefeller participated. In this way, the tools developed under the JLN Information Technology Track will be shared with the broader global health community.

**Utilize a coordinated approach.** Recognizing and embracing the diversity of approaches and initiatives underway, we agree to coordinate our work and collaborate on and/or share experiences to strengthen health systems.

**Ensure country ownership and capacity development.** We will respond to capacity development needs articulated and driven by local constituencies to ensure appropriate support and partnerships and development of local capacities.

**Openness.** We are committed to openness including promotion and use of open architecture, industry-based standards and transparent shared processes and methodologies, and open sharing of requirements and other technology knowledge components.

**Strategic reuse.** We will organize to extract reusable components from appropriate projects, and build new, shared components and platforms as required.

**Research and monitoring and evaluation.** We will contribute to the body of knowledge that informs future investment through utilization-focused research and evaluation activities.

## Project team contact information

### **PATH**

2201 Westlake Avenue, Suite 200  
Seattle, WA 98121, USA

David Lubinski, Senior Advisor  
+1 206.302.4558  
[dlubinski@path.org](mailto:dlubinski@path.org)

Kate Wilson, Senior Program Officer  
+1 206.302.4553  
[kwilson@path.org](mailto:kwilson@path.org)

Abbie Johnson, Program Coordinator  
+1 206.302.4752  
[adjohnson@path.org](mailto:adjohnson@path.org)

### **PharmAccess Foundation**

Trinity Building C  
Pietersbergweg 17  
1105 BM Amsterdam Zuidoost  
+31 (0) 20.566.71.58

Cees Hesp, Chief Technology Officer  
+31 (20) 566.71.58  
[c.hesp@pharmaccess.org](mailto:c.hesp@pharmaccess.org)

Ad Rietberg, Senior Consultant  
+31 (20) 566.71.58  
[a.rietberg@pharmaccess.org](mailto:a.rietberg@pharmaccess.org)

### **Public Health Informatics Institute**

325 Swanton Way  
Decatur, GA 30030, USA

Dave Ross, Director  
+1 404.687.5634  
[dross@phii.org](mailto:dross@phii.org)

Vivian Singletary, Senior Public Health Informatics Analyst  
+1 404.592.1419  
[vsingeltary@phii.org](mailto:vsingeltary@phii.org)

### **Project Advisor**

Dr. Dennis J. Streveler  
+1 415.269.5645  
[dennis@streveler.com](mailto:dennis@streveler.com)  
strev@hawaii.edu

## Acknowledgments

### Expert contributors

Osei B. Acheampong, National Health Insurance Authority (NHIA), Ghana

Adebajo Adedotum, Hygeia National Health Insurance Scheme, Nigeria

Sam Adjei, Center for Health and Social Services (CHeSS), Ghana

Dr. Fazilah Shaik Allaudin, Ministry of Health, Malaysia

Nancy Ampah, Ayawaso Scheme, Ghana

Elizabeth “E.J.” Ashbourne, World Bank, Global

Hortenzia Beciu, World Bank

Herman Bennema, Vektis, Netherlands

Michiel Berende, Microinsurance Network, Global

Sofi Bergkvist, ACCESS Health

Dr. Amiruddin Bin Hisan, Ministry of Health, Malaysia

Paul Biondich, Regenstrief Institute, Global

Ernest Z. Bower, Center for Strategic and International Studies (CSIS), Southeast Asia Program

Cheryl Cashin, Joint Learning Network Provider Payment Track, Global

Jorge Coasa, World Bank, Health Initiative in Africa, Kenya

Nadine Collett, Health Insurance Fund, Netherlands

Diana Dennett, America’s Health Insurance Plans (AHIP), United States

Aaltje de Roos, Ministry of Foreign Affairs, Netherlands

Maarten Dijkshoorn, former CEO Eureka

Monique Dolfing, Medical Credit Fund (MCF), Global

Bob Emrey, United States Agency for International Development (USAID), Health Systems 20/20 (HS 20/20), Global

Anis Fuad, PT Askes, Indonesia

Martin Fuller, MicroEnsure, United Kingdom

Dr. Tick Eu Heng, Ministry of Health, Malaysia

Jeanna Holtz, International Labour Organization (ILO), Global

Kelvin Hui, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Indonesia

Carol Hullin, World Bank, Netherlands

Dr. Rozita Halina Tun Hussein, Ministry of Health, Malaysia

Pianghatai Ingun, National Health Security Office (NHSO), Thailand

Nishant Jain, German Society for International Cooperation (GIC, formerly GTZ)

Michael Joseph, Safaricom/World Bank, Kenya/Global

Dr. Jaranit Kaewkungwal, Biophics, Thailand

Dr. Amnat Khamsiriwatchara, Biophics, Thailand

Dan Kress, Bill & Melinda Gates Foundation, Global

Joe Kutzin, World Health Organization (WHO), Europe

Gerard M. LaForgia, World Bank

Gina Lagomarsino, Results for Development Institute (R4D), United States

Joep Lange, Amsterdam Institute of Global Health and Development (AIGHD)/Amsterdam Medical Center (AMC), Global

Jack Langenbrunner, World Bank, China

Jose Lopez, Ebix Inc., United States

Alvin Marcelo, Philippine Health Insurance Corporation (PhilHealth), Philippines

Sylvester Mensah, NHIA, Ghana

Tom Meyers, AHIP, United States

Shirley Moningkey, Health Office, Tangerang, Indonesia

Perry Nelson, NHIA, Ghana

Robert Palacios, World Bank, RSBY, India

Alex Preker, World Bank, Global

Diah Ayu Pusandari, Center for Health Financing Policy and Health Insurance Management, Faculty of Medicine, University of Gadjah Mada, Indonesia

Paul Rueckert, GIZ, Indonesia

Thaworn Sakunphanit, Health Insurance System Research Office, Thailand

Amit Samarth, ACCESS Health, Rajiv Aarogyasri Health Insurance Scheme, India

Kemal Santoso, PT Askes, Indonesia

Nelly Sari, Ministry of Health, Indonesia

Onno Schellekens, Investment Fund for Health in Africa (IFHA), Global

Cheryl Scott, Bill & Melinda Gates Foundation, United States

Dr. Lydia Baaba Selby, NHIA, Ghana

Mazen Skeik, Ministry of Health, Palestine

Dr. Michael Stahl, GIZ

Dr. Dennis J. Streveler, University of Hawaii

Netnapis Suchonwanich, NHSO, Thailand

Dr. Yolsilp Suchonvanich, NHSO, Thailand

Dr. Aboyami Sule, Hygeia Community Health Plan, Nigeria

Changqing Sun, World Bank, India

Anil Swarup, Ministry of Labour and Employment (MoLE), Government of India

Julia Teerling, PharmAccess Foundation, Netherlands

Kanjana Tisayatikom, NHSO, Thailand

Dr. Nicholas Twenneboa, NHIA, Ghana

Wyly Wade, World Bank, India

Hong Wang, Bill & Melinda Gates Foundation, China, Egypt, India (RSBY), Nigeria

Dr. Suwit Wibulpolprasert, International Health Policy Programme, Ministry of Public Health, Thailand

Viroj Tangcharoensathien, International Health Policy Programme, Ministry of Public Health, Thailand

Thierry van Bastelaer, Abt Associates, United States

Chris van der Vorm, Health Insurance Fund, Netherlands

John Wille, World Bank, Global

## **Core work group**

Oscar Abadu, Jr., PhilHealth, Philippines

Upendra Anitha, Suvarna Arogya Suraksha Trust, Bangalore

Atikah Adyas Anwar, Coordinating Ministry for People's Welfare of Indonesia, Social Security, Indonesia

Sumita Chopra, Rashtriya Swasthya Bima Yojna (RSBY (World Bank)), India

Pianghatai Ingun, NHSO, Thailand

Nishant Jain, RSBY (German Society for International Cooperation, formerly GTZ), India

Benjamin Kusi, NHIA, Ghana

Fadhili Chacha Marawa, National Hospital Insurance Fund, Kenya

Dennis Mas, PhilHealth, Philippines

MBW Dogo Muhammad, National Health Insurance Scheme, Nigeria

Ali Ghufron Mukti, Universitas Gadjah Mada, Yogyakarta Indonesia

Somil Nagpal, World Bank, South Asia

Perry Nelson, NHIA, Ghana

Eliud Karingo Njoka, National Hospital Insurance Fund, Kenya

Claudia Olsson, ACCESS Health, Southeast Asia

Subbarayan Prakash, Star Health and Allied Insurance Company Ltd, India

Samuel Quarshie, Ghana Health Service, Ghana

Cheickna Touré, L'Union Technique de la Mutualité Malienne (UTM), Mali

## **Project technical team**

Nicole Buchanan, Public Health Informatics Institute (PHII)

Alice Garabarant, Results for Development Institute (R4D)

Cees Hesp, PharmAccess Foundation

Brian Latko, R4D

David Lubinski, PATH

Ad Rietberg, PharmAccess Foundation

Dave Ross, PHII

Vivian Singletary, PHII

Paul Stepney, Hewlett-Packard

Kate Wilson, PATH

## Executive summary

Globally, countries are expanding access to health services and providing protection from financial risk to more of their citizens through the development of national health insurance schemes. While the strategies, policies, and technologies used to support these national health insurance schemes are as varied as the countries implementing them, one common challenge is continuously cited—the availability of data for decision-making and achieving consistent data exchange among diverse information systems.

Why is this data exchange so important? Because the ability for a country to care for all of its citizens depends upon the ability to identify those citizens, enroll them, treat them when they are ill, and follow up when needed. In turn, providers need to be paid, governments need to be able to track expenditures, and most importantly, the insurance scheme(s) must remain solvent in order to care for all citizens. These “actions” all require data and information exchange, whether paper- or electronic-based, if the goal of universal coverage is to be achieved.

The ability to perform the above functions in many countries today is hampered by fragmented and often weak health insurance and hospital information systems. Existing health information system components in most countries were designed to solve a specific problem but generally were not designed to communicate with other systems. Across insurance schemes and between health care facilities, this lack of a common “language” complicates the exchange of information about patients, diagnoses, costs, payments, and other data needed to provide quality care and facilitate transactions in the health sector. Pharmacies, private providers, community health centers, hospitals, and insurance payers often have their own separate codes, protocols, standards, and technologies that prevent data sharing. This poses a serious challenge, leading to reimbursement delays, increased transaction costs, inefficient use of resources, and the potential for inequitable treatment and fraud.

The Joint Learning Network (JLN) is a cross-learning platform for countries that are in the midst of implementing demand-side health financing reforms aimed at increasing financial protection, improving access to health services, and ultimately achieving universal health coverage.<sup>2</sup> Member countries (presently Ghana, India, Indonesia, Kenya, Malaysia, Mali, Nigeria, the Philippines, Thailand, and Vietnam) and several development partners seek to share experiences and solve problems jointly on technical and implementation challenges inherent in such reforms.

---

<sup>2</sup> Many of these reforms are frequently called “National Health Insurance,” although this categorization can be confusing since many countries raise revenues through general taxation. Common characteristics of these reforms include provider payments according to patient volume (purchaser/provider split) and more varied provider networks that often include private providers.

Information technology (IT) support and specifically a concern over interoperability emerged as one of four priority technical areas for countries at the pilot Joint Learning Workshop held in Manesar, India, in February 2010. Feedback from consultations and subsequent JLN activities indicated that countries place a strong emphasis on cross-learning in the area of IT, prompting this preliminary effort on the topic.

In November 2010, The Rockefeller Foundation provided catalytic funding to PATH, PharmAccess Foundation, and the Public Health Informatics Institute to begin determining and documenting common requirements for health insurance information systems that support national health insurance schemes. Dr. Dennis J. Streveler, a health informatics expert at the University of Hawaii, also provided invaluable strategic consulting to the project.

PATH was asked to lead this initial partner consortium based on prior work adapting and applying the collaborative requirements development methodology (CRDM) in the domain of supply chain. The value of CRDM is its ability to extract best practices from users, managers and stakeholders that can then be vetted, validated, and shared as a common good when implementing or refining their IT systems for national health insurance schemes. In one recent success, Zambia's Ministry of Health (MOH) and partners involved in supply chain management applied the global requirements and used CRDM at the country level, achieving a significantly shorter and improved planning cycle that was driven by the MOH. Dr. G. Syakantu, Director-Clinical Care and Diagnostics Services, said, "The CRDM process has helped us envision a holistic information system, gather inputs from the right people, and move forward into system development with confidence." The Zambian MOH is now sourcing a supply chain solution to meet their needs based on the outputs from the CRDM process.

The consortium has been working since November 2010 to

- (1) create a better understanding of the IT support **needs** required by the JLN members;
- (2) determine and document user and system **requirements** for some core insurance operations (e.g., enrollment, claims management, utilization management); and
- (3) document and disseminate information on some common global standards, a glossary, and a health data dictionary prototyping **tools** that can be used as a starting point by countries to develop or refine country-specific health insurance architectures.

This report and the accompanying health data dictionary primer summarizes those efforts and hopefully provides both JLN and non-JLN members alike with information and practical tools and resources that can support national-level efforts.

## The need

The Joint Learning Network (JLN)<sup>3</sup> is primarily a vehicle for peer-assisted learning and exchange amongst countries implementing demand-side financing reforms to ensure greater financial protection, improve access to health services, and ultimately achieve universal health coverage.<sup>4</sup> Figure 1 below depicts the primary ways in which member countries engage with each other.

Figure 1. JLN main modalities of member engagement. Joint Learning Network, 2011.



JLN members engage with each other through four main modalities:

- **On-demand learning and exchange:** Peer-to-peer exchange and targeted technical support helps countries to design, organize, implement, evaluate, and seek funding for reforms. The JLN provides support for member countries for on-demand learning through the [Joint Learning Fund \(JLF\)](#). Member countries can apply to the fund for support for activities such as site visits, staff secondments, regional events, or technical assistance.
- **Multilateral learning workshops:** Multilateral workshops maximize opportunities for informal networking and discussions on coverage topics of shared interest. Past

<sup>3</sup> Readers are encouraged to visit [www.jointlearningnetwork.org](http://www.jointlearningnetwork.org) for more information on the JLN, the technical tracks it supports, and country-specific health insurance schemes.

<sup>4</sup> Many of these reforms are frequently called “National Health Insurance,” although this categorization can be confusing since many countries raise revenues through general taxation. Common characteristics of these reforms include provider payments according to patient volume (purchaser/provider split) and more varied provider networks that often include private providers.

workshops include [Moving Toward Universal Health Coverage](#), [Provider Payment Systems](#), and [Expanding Coverage to the Informal Sector](#). Information on upcoming workshops can be found in the [Events](#) section; you can also sign up for our [quarterly newsletter](#) for more information.

- **Operational research and analysis:** Connections between practitioners and researchers help respond to pressing country demand.
- **Documenting country experiences:** In order to deepen the evidence base and cross-learning opportunities available to its members, the JLN comparative case studies and other analytical products document reforms that are underway.

Over the course of Phase 1, the consortium met extensively with JLN representatives and sought input on the types of challenges faced and the potential solutions to be prioritized for the Information Technology Track. Global insurance experts from Abt Associates, the Bill & Melinda Gates Foundation, GIZ, Health Insurance Fund, Hewlett-Packard, US Agency for International Development, and the World Bank also provided invaluable input to the consortium on the challenges faced in existing projects with which they work. Five key areas emerged as places where all JLN members face challenges including:

1. Lack of interoperability and data standards.
2. Inappropriate technical solutions for the country context.
3. Lack of understanding of the costs of running a particular solution long term.
4. Securing buy-in and knowledge translation for information technology issues.
5. Financial and technical resource constraints.

Table 2 outlines how some of the key challenges faced by both insurers and care providers in JLN member countries. A complete list of individuals consulted in developing this understanding is contained in the Acknowledgements on pages xiii-xiv.

Table 2. Major challenges

Country Challenge	Description
Lack of interoperability and data standards	Insurers and care providers to date have implemented systems that meet existing needs. Insurers have developed systems that often are not harmonized due to lack of agreement at the national level on what data should be collected or in what forms. Similarly, care providers have implemented hospital-level systems that may not collect the same type of data. This can impede the ability of a national-level government to monitor utilization, direct financing appropriately, and track areas of emerging need. Similarly, this will impact the ability of either the insurer or the care provider to develop efficient systems and provide the necessary data across schemes.

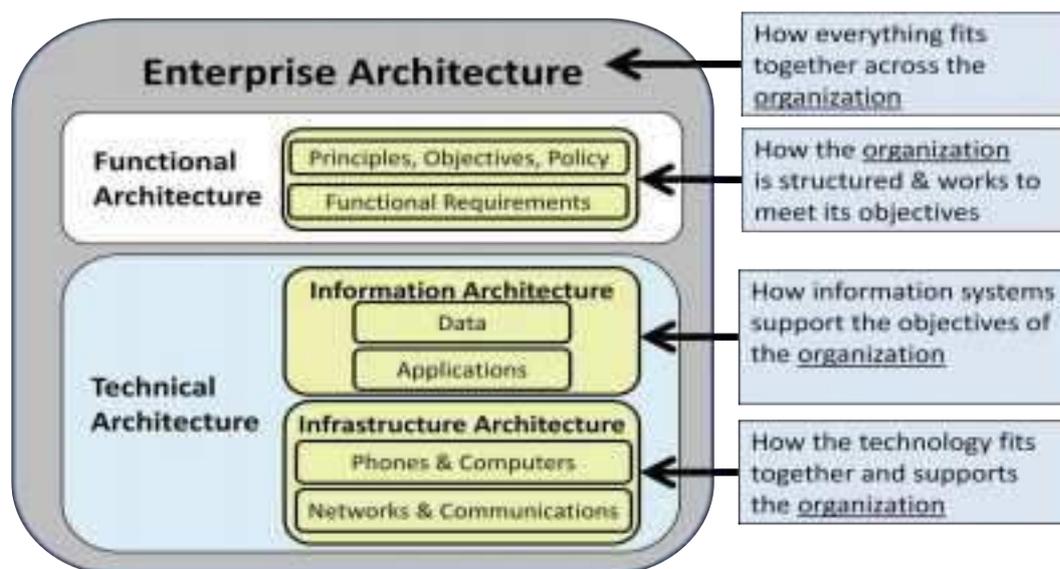
Country Challenge	Description
Identifying appropriate existing technical solutions for the country context	Data standards in the developed world or IT solutions used in country X may not be appropriate for country Y. Policymakers may decide upon a “solution” based on its use in another country which would not be workable in their country due to existing policy or technical considerations.
Lack of understanding of the operational realities of running a particular solution long term	A common problem cited by “implementers” of IT systems is that they are brought in late to the process of determining an appropriate solution and the long-term operational issues and costs of running a chosen solution are not well understood by policymakers.
Securing buy-in and knowledge translation for IT efforts	Given the number of key players necessary to decide upon, source, and implement IT initiatives (ministries of health, insurers, care providers) and those affected by its implementation (doctors, nurses, patients, administrators, etc.), it can be difficult to secure buy-in for new IT initiatives or changing existing systems. Developing a collaborative process to determine and document country-level requirements and building in training across stakeholder groups for implementation is essential.
Financial and technical resource constraints	Restricted budgets are affecting IT budgets in JLN member countries. Data from Phase 1 countries indicate that the percentage of spending against IT budgets is quite low relative to overall health care budgets. In addition to this challenge, in many countries there are significant technical resource constraints in terms of identifying country-national technical experts who are committed to implementing a national health insurance information system (HIIS).

When considering the above challenges, starting with a focus on developing common building blocks for enterprise architecture was considered the first logical step as a tool that would be useful to the greatest number of countries. This work was undertaken deliberately, recognizing that JLN members are at varying levels of maturity in their information system development. Some countries have robust systems in place and are an example for others while some members are just embarking on this journey. A common question raised throughout the project was “why build common requirements when you can use an existing system from another country?”

The challenge with this approach is that each country designs or acquires an information system to solve their unique challenges without regard for what another country might need.

Systems are rarely designed to be shared among countries. Furthermore, the context in which one system may work well may differ vastly from the context that exists elsewhere. Thus, national leaders today have a difficult time evaluating existing systems and determining what will work within their context unless they have developed functional requirements first as part of an enterprise architecture. Figure 2 depicts the main components of an enterprise architecture.

Figure 2. A focus on functional requirements



What is meant by an enterprise architecture? The *enterprise architecture* represents a logical understanding of the context of the work performed in health insurance—the problems, opportunities, work flow, business processes, activities, requirements, and the people that perform the work, or are users/producers of information. *Solutions* are the physical instances that are informed by the architecture, taking the form of information and communications technology that people will use to perform work, provide/gain access, and use information. The overall goal of the architecture work is to deliver effective, practical solutions that enable both payers and providers in a country to do their work more effectively and efficiently in support of delivering care to patients.

The foundation of an enterprise architecture is the functional requirements it is supposed to address. Functional requirements are essentially the “rules” of the system and represent in common language “what” the system is supposed to do to achieve its goals (e.g., process a claim within 24 hours). Functional requirements should precede technical architecture or the “how” the system performs the action (e.g., claims processing engine call to database). Functional requirements are an invaluable tool to policymakers and technical experts alike. Policymakers find them valuable as their health insurance goals can then dictate what the information system delivers instead of the other way around. Technical experts can also value the clarity which knowing these goals up front can provide to developing a system that can scale to cover a nation’s population. While design trade-offs are inherent in all information system products, functional requirements provide the bridge to have those conversations among experts in health and software. Despite the importance of functional requirements in

designing and developing health information systems, its actual application still lags,<sup>5</sup> particularly in the area of health insurance according to both global experts and JLN stakeholders alike.

Figure 3. Framework for global common architecture and local country-specific solutions



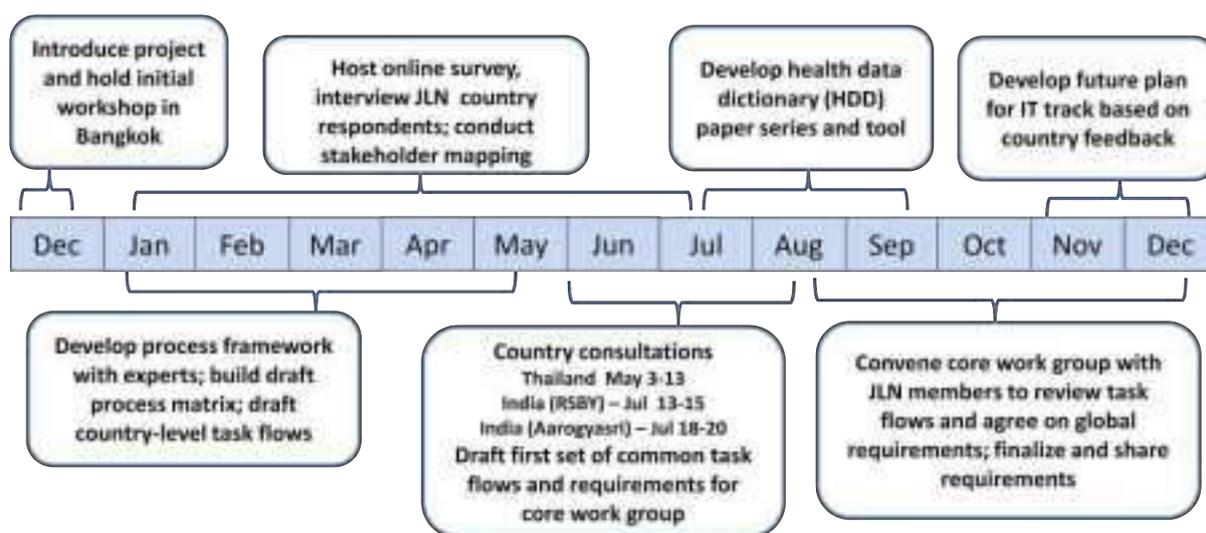
Figure 3 provides a framework for understanding the relationships between architecture and solutions and differentiating those things that are global, common, and reusable by many countries versus those that are local and specific to one country. Ultimately the value of information systems is realized only when solutions are deployed in a country as presented by the lower right hand cell in the grid (4); but two equally powerful paths are possible for this value to be realized. The first path is a bi-directional relationship or feedback loop between global architecture (1) ↔ country-specific (local) architecture (2) ↔ country-specific (local) solutions (4). Existing and ongoing work in each box can inform others through broad sharing of outputs. Specific solutions are incredibly valuable to help inform architecture. Global and common requirements can inform specific national architectures and common solutions. The second path might be more likely to draw value from specific solutions, as there are numerous existing projects where direct, immediate, and invaluable deployment experience is available to be leveraged. Health Metrics Network and others serve a key clearinghouse role for information, tools, and project outputs that support these feedback loops.

One major challenge countries face is the lack of resources, tools, and common, reusable building blocks available to plan and create their own country-specific enterprise architectures and solutions. This project focused on delivering three of these building blocks by developing (a) a common framework with which to view insurance processes, (b) the

<sup>5</sup> Schlotzer A, Madsen M. Health information systems: requirements and characteristics. In: EJS Hovenga, et al., eds. *Health Informatics*. IOS Press: 2010: 156–166.

global common, reusable requirements for a national health insurance information system (NHIIS), and (c) an illustration of how one might develop a country-specific plan via a health data dictionary (HDD). The purpose of developing common architectural building blocks is to create, catalog, and distribute reusable components to provide countries, donors, and developers a starting point to reduce the cost and time of creating their own enterprise architectures, plans, and solutions. Figure 4 highlights the work that the JLN Information Technology Track undertook over the course of 2011 in building these deliverables.

Figure 4. National health insurance information systems requirements project plan



## Developing functional requirements

### CRDM: a tool for achieving greater health impact

In 2009, PATH received a grant from The Rockefeller Foundation to develop a model enterprise architecture for low-resource settings that supports the design and development of sustainable, scalable, and affordable national health information systems no matter the health domain. PATH worked with the Public Health Informatics Institute and other informatics leaders to adapt and validate a standardized methodology for gathering and documenting the specific functions that information systems must perform. That approach is called the Collaborative Requirements Development Methodology (CRDM), which can be used across countries, cultures, and segments of the health care system to manage information. The CRDM was first applied by PATH and the Public Health Informatics Institute in the domain of supply chain. Requirements developed at the global level working with countries were then adapted and are being applied at the national level in Ethiopia, Rwanda, Tanzania, and Zambia to inform those countries' enterprise architectures.

CRDM contains five discrete yet integrated steps that engage users, subject matter experts, and stakeholders *collaboratively* to determine and document the system in each step.

1. **Domain** – A set of functions and processes that define the work of a specific area of the larger health system, i.e., health finance, health service delivery, supply chain.
2. **Process Framework** – A set of processes that define the boundaries of a domain and the relationships between them and other systems and domains.
3. **Business Process** – A set of activities and tasks that logically group together to accomplish a goal or produce something of value for the benefit of the organization, stakeholder, or customer.
4. **Activity/Task Model** – Visual representation of a business process in terms of tasks, sets of tasks and decision points in a logical workflow used to enhance communication and collaboration among users, stakeholders, and engineers.
5. **Requirement** – A statement that describes what an information system must do to support a task, activity, or decision. These are non-technology statements that usually begin with “the system must or shall...”

### The process framework: What does a health insurance information system need to cover?

The first step and perhaps the most crucial for this project was to gain agreement on the description of the domain of health insurance by developing the *process framework for health insurance*. Based on input from JLN member countries at a small workshop held in Bangkok in December 2010, it became apparent that while the functions for information systems in some areas (e.g., in supply chain one needs to order stock, manage inventory, etc) were quite well defined globally, there was no such agreement amongst insurance experts or JLN members on what was “in” and “out” of scope for the HIIS overall since each country implements health insurance in a unique way today.

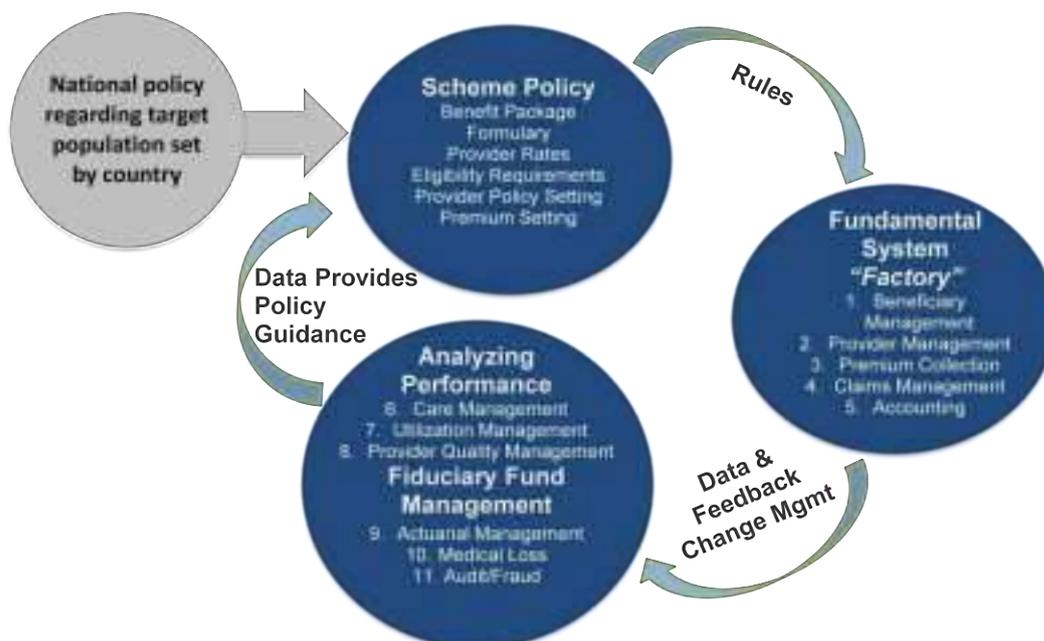
To answer this question, the project convened a group of experts<sup>6</sup> in Amsterdam, Netherlands in January 2011 to provide insight into what are the common aspects of NHIIS. The meeting goal was to “develop a general process map containing common components of a national health insurance system.” Over the course of two days, the group identified eleven processes which would be considered “common” in most national health insurance systems as illustrated in Figure 5. The expert group emphasized the degree to which these processes were fundamentally affected by the national policy and regulatory environment which subsequently deeply impacts scheme policy design.

---

<sup>6</sup> The expert group was composed of diverse representation from country, technology, policy, and donor organizations including Abt Associates, the Bill & Melinda Gates Foundation, the Health Insurance Fund, Hewlett-Packard, the National Health Security Office of Thailand, the World Health Organization, and the World Bank.

Figure 5. Process framework for national health insurance

### What is the process framework?



The experts emphasized a few key messages that shaped the project work conducted in 2011 and will continue to be a focus for 2012 and 2013.

- **Set the Context:** Build a visual map of the full system/ecosystem and think about how to bridge this work with national and global organizations considering different health coverage schemes. National policy development and stakeholders strongly affect the scheme rules. The project will need to articulate how these policies affect the process framework and business processes even though outside the scope of this project.
- **Articulate the whole process framework and then detail a few:** Experts emphasized that since the framework was often not well understood, detailing only a few process areas (e.g., claims processing) without detailing how that relates to other areas would not be useful to countries. Instead, the team needed to first articulate the 11 processes in some detail prior to focusing on the most critical areas and engaging with the JLN members to develop the common requirements.
- **Gather existing industry and country best practices and synthesize them into the business processes:** Industry and some countries (e.g., India and Thailand) have detailed business processes and system requirements in some detail. JLN members want to learn from each other and understand what has been tried before. Start first working with industry and some select example countries and use that learning to inform the common requirements developed.

- **Focus on the “factory” processes if/when you go deep to develop the requirements:** The scope of this work is too large for one year so focus is required. The project should prioritize requirements around a few key processes (i.e., eligibility, enrollment, pre-authorization, and claims processing) for development of requirements as those process areas are the ones that people just have to get right.
- **Share “process” definitions** broad and “deep” with countries to determine (a) their accuracy, (b) which need to be elaborated upon, and (c) which are most useful and develop specific guidance on how these can be used immediately and practically by countries. Without this pragmatic guidance, this project will be nothing more than another report on a shelf.

### **The business process matrix and glossary: What are the inputs to the system and how can we develop a common language for countries to use?**

Now that the framework was set, the next step was to develop the business process matrix detailing out each of the process groups (e.g., beneficiary management, claims management). This matrix, illustrated in Table 3 with one process group and found in full in Appendix A, details all of the 11 process groups, underlying business processes, objectives, and inputs and outputs of the 11 process areas contained in the “factory”/fundamental system and the information systems used to manage performance and conduct quality checks.

Table 3: Business process matrix example from one process group (see [http://www.jointlearningnetwork.org/sites/jlnstage.affinitybridge.com/files/Business\\_Process\\_Matrix\\_with\\_Links\\_0.pdf](http://www.jointlearningnetwork.org/sites/jlnstage.affinitybridge.com/files/Business_Process_Matrix_with_Links_0.pdf))

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
2.1	<a href="#">Beneficiary Management</a>	Enroll <a href="#">beneficiary</a>	Verify identity and <a href="#">eligibility</a> in a <a href="#">timely</a> manner of persons seeking access to <a href="#">benefit plan services</a>	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• Financial information</li> <li>• Geographic information</li> <li>• Qualifying criteria (see <a href="#">qualifying conditions</a>)</li> <li>• Proof of identity</li> <li>• (e.g. national <a href="#">identification card</a>, personal identification number, <a href="#">biometric information</a>, photos)</li> <li>• Medical history</li> <li>• Current medical condition</li> </ul>	<ul style="list-style-type: none"> <li>• Time-based <a href="#">eligibility</a> determination</li> <li>• Beneficiary identifier</li> <li>• <a href="#">Benefit plan</a> number</li> <li>• Benefits class</li> <li>• <a href="#">Benefits plan</a> detail</li> <li>• <a href="#">Proof of coverage</a></li> <li>• Feed into data repository</li> </ul>	<ul style="list-style-type: none"> <li>• Validate identity documents</li> <li>• Record information in data repository</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Eligibility</a> is determined as approved or rejected.</li> <li>• Approved person receives <a href="#">proof of coverage</a> (e.g. I.D. card)</li> <li>• Assign benefits class</li> <li>• <a href="#">Benefits plan</a></li> <li>• Accurate list of <a href="#">beneficiary</a></li> </ul>
2.2	<a href="#">Beneficiary Management</a>	Assign <a href="#">beneficiary</a> to a <a href="#">Primary Care Provider (PCP)</a> or <a href="#">primary care</a> unit	<p>Assign <a href="#">beneficiary</a> to participating <a href="#">PCPs</a> or <a href="#">primary health</a> units based on rules (i.e., geography, load of <a href="#">beneficiary</a>)</p> <p>Allow <a href="#">beneficiary</a> to select <a href="#">PCP</a> or <a href="#">primary health</a> units from available list</p>	<ul style="list-style-type: none"> <li>• <a href="#">beneficiary</a> identifier</li> <li>• <a href="#">Provider identifier</a></li> <li>• Census</li> <li>• Benefit class</li> <li>• <a href="#">Benefit plan</a></li> <li>• Physical proximity (e.g. work or home)</li> <li>• List of available <a href="#">providers</a></li> <li>• Family relationships</li> <li>• Maximum number of <a href="#">beneficiaries</a> to which a <a href="#">provider</a> can attend</li> </ul>	<ul style="list-style-type: none"> <li>• Provider <a href="#">capitation</a> list</li> <li>• Provider <a href="#">roster</a></li> <li>• Notification of <a href="#">primary provider</a></li> </ul>	<ul style="list-style-type: none"> <li>• List of available <a href="#">providers</a></li> <li>• <a href="#">Roster</a> size calculation</li> <li>• <a href="#">Roster</a> associations</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Providers</a> receives <a href="#">beneficiary</a> list/<a href="#">roster</a></li> <li>• <a href="#">Beneficiary</a> receives notification of <a href="#">primary provider</a></li> <li>• Accurate list of <a href="#">beneficiary</a> and selected/ assigned <a href="#">PCP</a> or <a href="#">primary care</a> unit</li> </ul>

While the process matrix was an expansion from the initial project scope, taking the time to develop the full matrix was extremely useful once developed by working with international insurance information systems experts<sup>7</sup>. This matrix provides a *high level* view of the health insurance domain and is not intended to guide any one country's selection of an information system but rather, it serves as a foundation piece that can outline a robust set of possible inputs/outputs to an information system. Accompanying the process matrix and embedded in it is a glossary (Appendix B) of critical health insurance terms developed from reviewing existing literature and from the word choices used in our tools. The glossary is a critical communication tool and was developed specifically for this project. The rationale behind developing this glossary is that to enhance sharing across countries, terms must be understandable and applicable across numerous contexts. The use of a specific term in the process matrix and the task flows may be subject to the reader's personal interpretation without the presence of the glossary. The goal in developing this glossary, first and foremost, was to explain how the project was using the term and to provide specific links in the process matrix and task flows to the glossary. This glossary is continuously changing with input from JLN members and can be viewed at <http://www.jointlearningnetwork.org/health-insurance-glossary>.

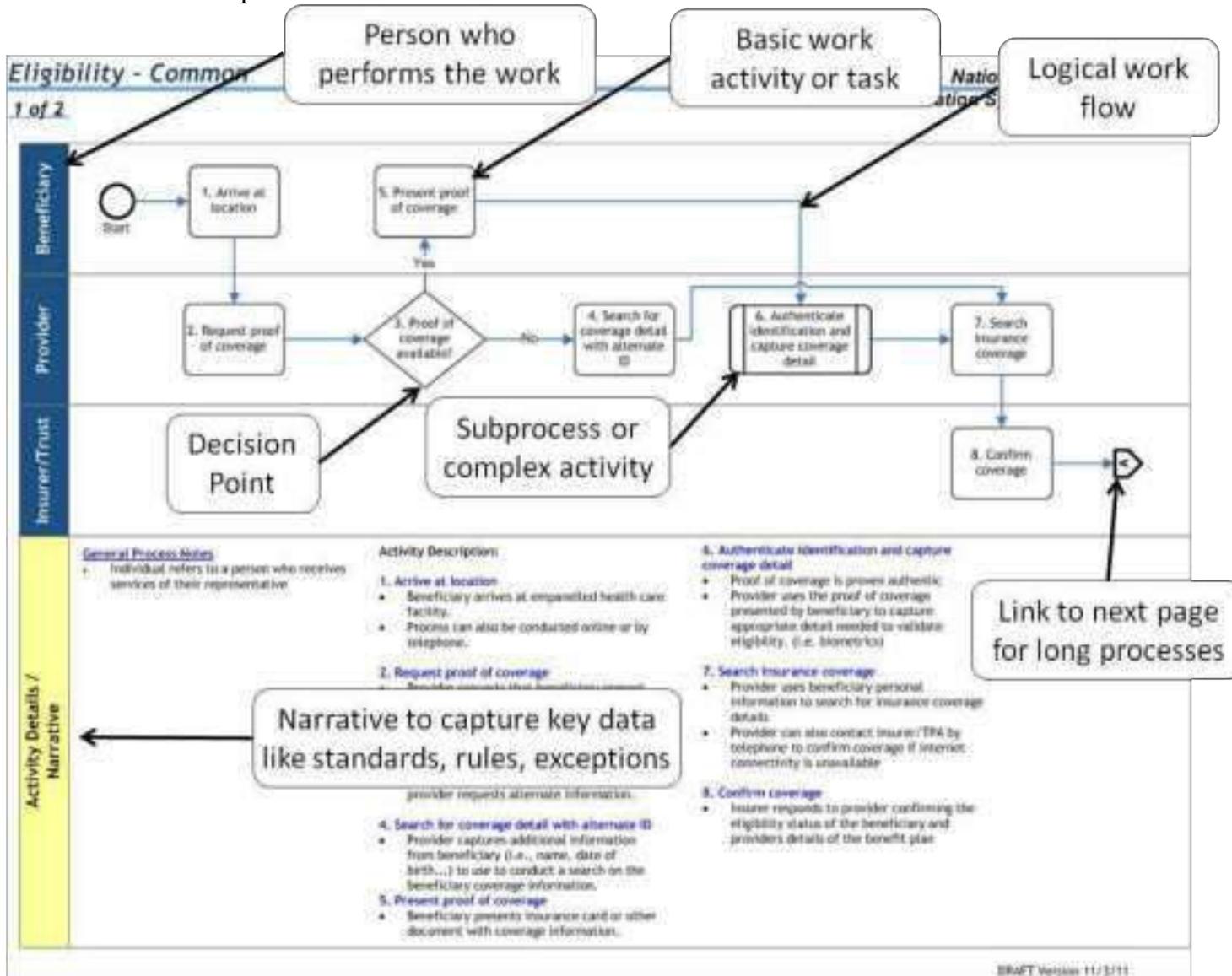
### **Activity task flows and field validations: How does the system work in practice and are there common elements?**

As described previously, mapping activity task flows is a key CRDM output, this helps make the system “visible” and easier to understand and share between users, experts and stakeholders. Tailored towards understanding user needs in more detail, this step is built normally with a core work group of country participants and then validated through field visits to observe the current system in practice and understand individual nuances. An example of the components of and a representation of a common task flow model for enrollment in health insurance is contained in Figure 6.

---

<sup>7</sup> A special thanks to the Public Health Informatics Institute which led the development of the matrix with support from PATH and guidance from global insurance organizations including PharmAccess, Dr. Dennis Streveler, Khun Pianghatai Ingun, Dr. Michael Stahl of GIZ, Ms. Cheryl M. Scott of the Bill & Melinda Gates Foundation, and Mr. Paul Stepney of Hewlett-Packard.

Figure 6. Enrollment task flow example



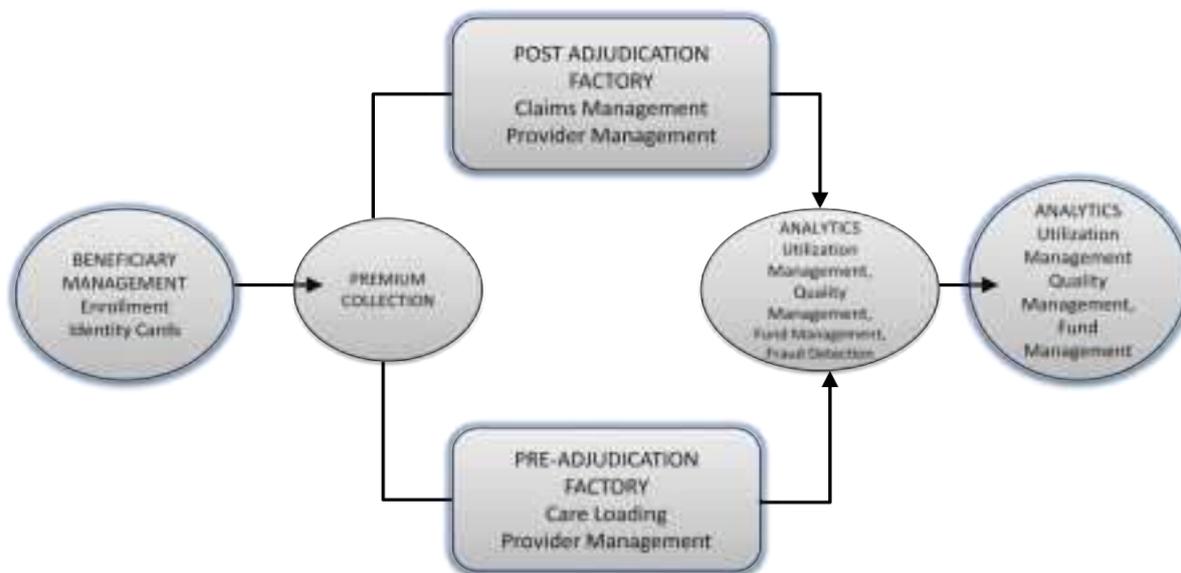
Given the complexity of health insurance models (e.g., pre-adjudication versus post-adjudication) and differences amongst scheme implementations, strong concerns were raised by some of our international experts at the outset that anything “common” could be found amongst the countries. The expert group suggested that the team reorder the normal CRDM process and instead start with understanding a few, highly differentiated, well-documented systems in some depth prior to bringing a core work group together to develop “common” task flows and requirements.

Thailand’s National Health Security Office, Rashtriya Swasthya Bima Yojna (RSBY), and Aarogyasri in India were the three systems that were selected for study of the common elements and “best practices.” These schemes were chosen because of the maturity of their operations, the different models which they represented (pre-adjudication versus post-adjudication) and the extensive schematic detail already developed by their architects. Building upon this public documentation, the process matrix and the glossary, and the generous support and time of experts in those schemes, the team drafted initial activity task flows for eligibility enquiry, enrollment, pre-authorization and claims management for these three schemes. The team also traveled to observe the schemes in practice, meeting with representatives and stakeholders at each level of operation from May through July of 2011. The task flows developed with these stakeholders can be found in Appendix C. It should be noted that readers interested in learning first hand about these three schemes and understanding their design in robust detail are encouraged to visit <http://jointlearningnetwork.org/content/tools> for more information and reach out to representatives from these schemes directly.

The team owes owe a debt of gratitude to all persons who were kind enough to meet with us during our trips and in particular to those persons who guided us on the structure of their respective health insurance design and the existing information systems (please see Acknowledgements on pages xiii to xiv).

Based on analysis of the country specific task flows, a set of common task flows and draft functional requirements were next developed for consideration by JLN members. During this process, the question of what elements of an HIIS may be common enough to lend themselves to functional requirements that all countries could use re-emerged. The team further refined its thinking on how to manage some of the core areas where functional requirements may be common as well as where they may differ as highlighted in Figure 7. Based on his extensive work in countries, Dr. Streveler suggested that the team take two complementary approaches. The first was to focus on developing common tools and focus on areas where there was a high degree of agreement on functional requirements. In his view, these would likely be the areas highlighted in the darker blue below. However, while he agreed that some areas of claims management in a pre-adjudication and post-adjudication system would be common, he encouraged further development and refinement of claims adjudication rules by “type” of system as these would vary greatly based on scheme policy and design. These issues and others proved to be critical when the team developed the DRAFT functional requirements.

Figure 7. Twenty-first century health insurance scheme models. Dennis Streveler, University of Hawaii.



**User and systems requirements: the JLN country members detail the common information system requirements for four processes and encourage the team to move forward faster.**

The common task flows and models developed during the field validation phase were used as a starting point for discussion during a JLN information technology work group session held in Singapore from October 3–7, 2011. The five-day session was divided into four sections with the first 2.5 days focused on the development of functional requirements for eligibility, enrollment, pre-authorization, and claims processing.<sup>8</sup> Country representatives attended from India, Indonesia, Ghana, Kenya, Mali, Nigeria, the Philippines, and Thailand. The group was introduced to the CRDM process and then in small facilitated work groups refined the business process matrix for these four process areas, developed new common activity task flows, and developed functional user requirements for these areas.

Functional user requirements are the statements that describe what an information system needs to do to support the tasks or activities that make up the business process. These requirements are things that a user will see and use and answer the question, “What needs to happen to support the user to complete a work activity?” For the business process areas<sup>9</sup> for which requirements were developed, there are a total of 41 activities and a total of 279 functional requirements that were identified by the core work group. These requirements, (the first 10 of each is detailed below and then listed in full in Appendix C) are organized under each business process and associated with each of the 41 activities they support. Not all listed

<sup>8</sup> Other subjects covered were (1) development of an HDD, (2) introduction to utilization management, and (3) planning Phase 2 of the JLN Information Technology Track.

<sup>9</sup> Note that general requirements are included in this list.

activities within the business process have associated requirements or have been fully detailed. For example, an area highlighted by the group for future follow-up was the detailing of pre-adjudication and post-adjudication claims rules. However, by showing activities that do not have associated requirements, we capture the complete logical flow of work which will be useful in the subsequent step when translating functional requirements into technical specifications. Creating these technical specifications will then be the work of software engineers, not part of the CRDM.

Appendix E also includes general system requirements which are not associated with a specific activity or business process but rather are requirements that impact the entire system. General system requirements differ from functional user requirements in another important aspect. These requirements most often are not visible to the end-user but are essential for the system to be able to perform and support the functionality a user does see and use. These 54 requirements are organized into 11 categories. These requirements and categories were not derived in one specific exercise with CRDM but instead were derived by the core technical team as a result of data collected throughout the entire CRDM project. These can and should be continuously informed by national implementations of national health insurance systems.

Table 4: General common system requirements example (complete list on pages E2 to E4)

ID	ACTIVITY	REQUIREMENT (The system must or should...)
1	General characteristics	Provide a stable and highly available environment
2	General characteristics	Provide a user-friendly interface that is consistent throughout the system
3	Data capture	Accept data from multiple input methods including paper, online web forms, PC asynchronously, PC synchronously
4	Data capture	Enter the value desired directly or from a drop-down table of valid values through standard mouse selection procedure
5	Data capture	Require mandatory fields to be filled before the user can exit the screen
6	Data capture	Support real-time data entry auditing quality control
7	Data capture	Support real-time data entry feedback preventing data entry errors from being recorded
8	Data capture	Provide appropriate calculations at time of data entry
9	Data capture	Log transactions at time of data entry
10	Data capture	Maintain transaction log history

Table 5: Enrollment system requirements example (complete list on pages E5 to E8)

ID	ACTIVITY	REQUIREMENT (The system must or should...)
1	Validate identification	Allow insurer to input national identification number
2	Validate identification	Allow insurer to check for valid identification number
3	Validate identification	Insurer to clearly notice error message if ID number does not match national/state database or list

ID	ACTIVITY	REQUIREMENT (The system must or should...)
4	Validate identification	Allow insurer to search and verify if enrollee is already enrolled in a current benefits plan
5	Capture personal information	Allow insurer to search database by name, identification number, etc. to see if beneficiary has existing enrollment record
6	Capture personal identifiable information	Allow insurer to capture biometric data
7	Capture personal identifiable information	Allow insurer to verify identity based on biometric data
8	Capture personal identifiable information	Allow insurer to capture or assign unique identification number for beneficiary
9	Capture personal identifiable information	Allow insurer to capture surname/family name
10	Capture personal identifiable information	Allow insurer to capture first name

Table 6: Eligibility system requirements example (complete list on page E9)

ID	ACTIVITY	REQUIREMENT (The system must or should...)
1	Search insurance coverage	Allow provider to search for beneficiary’s coverage detail with alternate identifier (i.e., name, date of birth, etc.)
2	Search insurance coverage	Allow provider to visibly see prompt for alternate identification method if ID presented is not valid
3	Capture coverage detail	Allow provider to capture identification detail
4	Capture coverage detail	Allow provider to capture proof of coverage detail
5	Capture coverage detail	Allow provider to capture biometric detail
6	Capture coverage detail	Allow provider to capture treatment referral details
7	Confirm coverage	Allow provider to validate identification including biometrics
9	Confirm coverage	Inform provider of benefits plan assigned to the beneficiary
10	Confirm coverage	Inform provider of beneficiary eligibility status

Table 7: Pre-authorization system requirements example (complete list on pages E10 to E13)

ID	ACTIVITY	REQUIREMENT (The system must or should...)
1	Gather needed info for approval	Inform provider of clinical guidelines or desired protocol for a diagnosis
2	Gather needed info for approval	Identify the requirements for service authorization (business policy visible to provider and/or insured)
3	Gather needed info for approval	Capture demographic data
4	Gather needed info for approval	Link unique ID to admission
5	Gather needed info for approval	Allow provider to capture patient historical diseases
6	Gather needed info for approval	Allow insurer to create a list of beneficiaries available to the provider
7	Gather needed info for approval	Inform/notify provider that proposed treatment requires pre-authorization
8	Gather needed info for approval	Display enrollment and eligibility information as part of submission
9	Gather needed info for approval	Allow provider to enter diagnostic test results
10	Gather needed info for approval	Allow provider to enter clinical notes and appropriate patient history

Table 8: Claims processing system requirements example (complete list on pages E14 to E19)

ID	ACTIVITY	REQUIREMENT (The system must or should...)
1	Generate claim	System should capture patient ID and encounter information (i.e., date of service, time of service, provider ID, pre-authorization number, provider type, location, type of service, diagnosis, procedure, patient ID, pharmaceuticals, co-payment, hospital #, International Classification of Diseases (ICD) codes, Diagnosis-related Group (DRG) grouper, treatment package number )
2	Generate claim	Allow provider to upload supporting documentation (i.e., photos, videos, diagnostic test results)
3	Generate claim	Allow provider to match pre-authorization approval to a claim
4	Generate claim	Allow provider to save a claims in process before it is submitted
5	Generate claim	Allow provider to easily locate and modify saved claims
6	Generate claim	Allow provider to access saved claim and modify claim until it is submitted
7	Generate claim	Allow provider to view a submitted claim
8	Generate claim	Allow provider to see provider's medical record for the beneficiary for which the claim has been generated
9	Generate claim	Allow provider to create claims by extracting key information from the provider's medical record system
10	Generate claim	Allow insurer to upload, scan, and/or manually input paper claims

### Applying requirements at a practical level

This document is designed to be both a road map and a tool. It serves as a road map for helping ministries of health move toward the vision of an effective NHIIS as expressed in this document. At the same time, it is a tool for structuring specific implementation projects, informing vendor requests for proposals and self-assessing existing NHIIS capabilities. It does not provide the technical specifications for an information system that are often used for designing and writing software applications. Ministries of health are encouraged to customize or adapt this document to respond to the specific situation and conditions they need to address. They can modify the business process sections by adding specific or unique requirements and deleting business processes not applicable to their scheme design.

Other health system domains that involve operational processes normally supported by separate information systems, such as human resources, finance, and general accounting, or pharmacy, are not included in these requirements. The requirements have been organized to provide a general and functional description for the reader of some key NHIIS functions from a “macro view” to a “micro view.” Country- or project-specific requirements and technical specifications need to be determined and documented within the context of a specific

country-based NHIIS project. These common requirements provide a starting point to support this work. In some cases, open source development projects and commercial off-the-shelf suppliers will develop such technical specifications with the intent of producing a general product for the market. This approach often allows for country- or project-specific adaptations or customizations to meet specific needs.

There are four specific examples of where the application of the requirements and the CRDM can add value to countries, donors, nongovernmental organizations, technical agencies, and software developers:

1. Prepare a request for proposal

For project teams that have identified the need to implement an information system to support national health insurance, the NHIIS documentation provides both a framework that will allow the proper scoping of the project and a checklist that can be used when drafting terms of reference or a request for proposal . First, it will allow the team to “zoom in” on what they want to do (functional scope). It will also allow the team to ask essential questions, for example: “Will the solution integrate with existing hospital information systems or will it need to have interface design built into it?” Once the scope is clear, essential questions are: “What are the requirements that will be relevant for our country context given our national and scheme rules?, What requirements must be developed on the provider and payer sides?”, “Are there any requirements that are essential to address while others would be nice to have but not essential?” The list of requirements provides a good head start in this prioritization process.

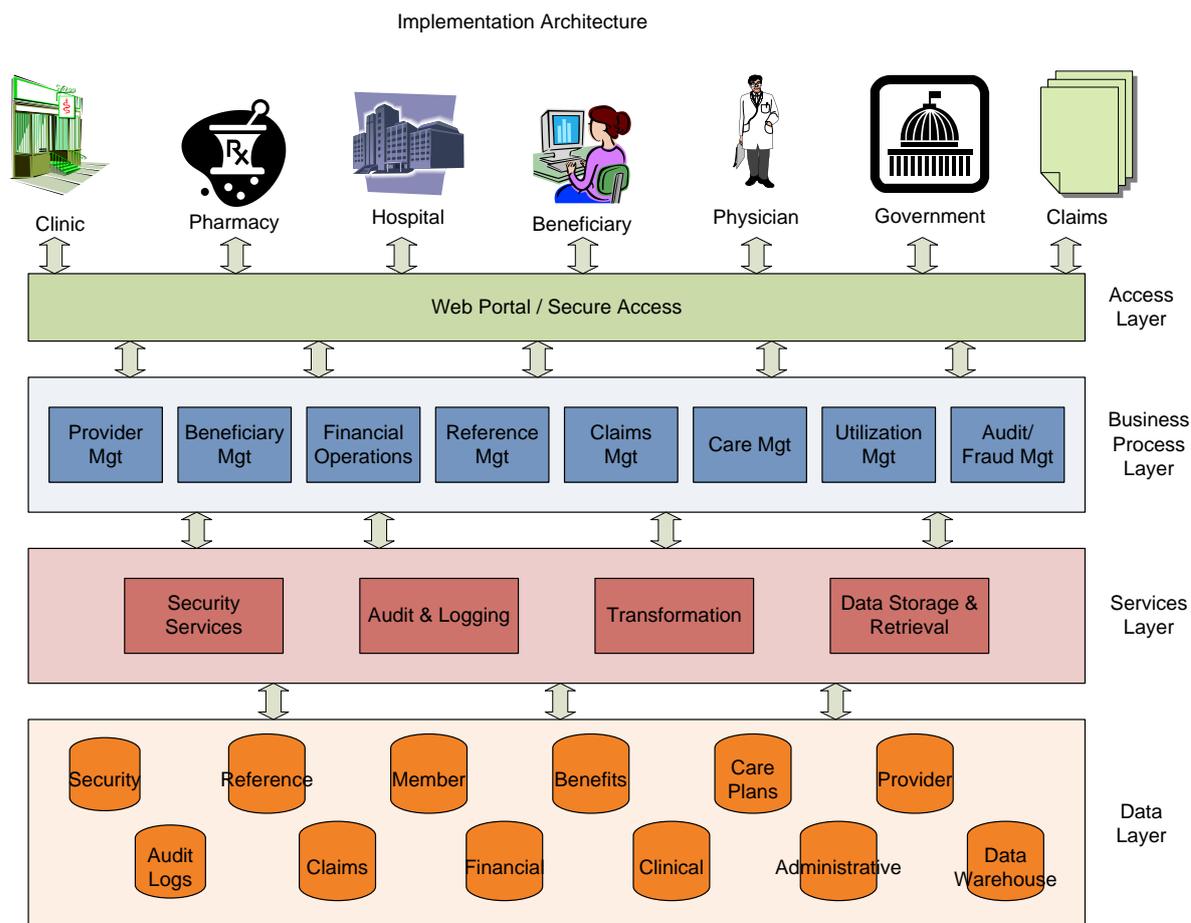
2. Evaluate alternative solutions

Sometimes managers will be in a position where they have many alternatives and need to choose a system that best matches the complex and diverse organizational needs. This is often a tricky process in which different parts of the organization may prefer different solutions. Not every software package will be equally strong across all requirements. The list of requirements may in this case be used to score different systems against a list of weighted and prioritized requirements based on country or team preferences, making the discussion more transparent and structured.

3. Conduct landscape analysis

Figure 8 is a reference conceptual architecture that highlights the number of discrete components and relationships that are likely to be part of an existing HIIS and how they will actually involve many different kinds of systems that all must work seamlessly together.

Figure 8. Example of reference conceptual architecture. Paul Stepney, Hewlett-Packard.



Some insurance systems are in actuality more focused on clinical care, while others could be characterized as data analytics or provider management. National governments, nongovernmental organizations, technical agencies, and donors can use these requirements to conduct further analysis of currently available NHIIS (including commercial, publicly funded, and open source); the requirements will provide an objective comparison to help with the mapping of system capabilities and the completeness of solutions evaluated.

#### 4. Apply CRDM in country projects

CRDM is a generic process and can be used to identify, discuss, reach agreement on, and document any business process and its related requirements systematically. Some key NHIIS processes and requirements were already mapped in this document in a way that should be as generic as possible, but even then there may be value to be had in the analytical and consensus-building aspect of the exercise itself at a country or project level. Furthermore, not all requirements may be equally important or even relevant in every context, so as a minimum, national or local users of this methodology should validate the content of processes and requirements in their specific context.

## Conclusions

Globally, countries are expanding access to health services to more of their citizens through the development of national health insurance schemes; the success of these efforts is highly dependent upon effective and scalable information systems. This project was asked to support these systems through the development of common functional requirements and to identify areas of need where future support could assist JLN members.

At the project outset, experts questioned if common functional requirements were possible since to date there has been little reuse of national health insurance systems from country to country. Through the application of the CRDM over the past year, it is clear that countries do share many of the same functional requirements that, if developed collaboratively with countries guiding the process, and documented properly, can be shared amongst countries to expedite the development of individual NHIIS. Further, it became apparent that there is strong alignment among JLN countries regarding the use of standards to promote interoperability amongst systems. Plus there is a need for common tools, such as a national Health Data Dictionary, to be developed as a building block for NHIIS.

Over the next two years, the JLN Information Technology Track will deepen its requirements work in the core process areas of claims management, specifically claims adjudication rules, and, at the request of members, determine and document requirements for premium collection and utilization management. Further, the track will provide direct assistance to countries that want to undertake national-level planning processes based on the requirements and develop a national HDD.

## References and additional resources

Ambler SW. *Agile Modeling: Effective Practices for eXtreme Programming and the Unified Process*. New York, NY: John Wiley & Sons, Inc.; 2002.

World Health Organization. *Developing Health Management Information Systems: A Practical Guide for Developing Countries*. Geneva: World Health Organization; 2004.

World Health Organization. *The Health Metrics Network Framework, 2<sup>nd</sup> ed.* January 2008. <http://www.who.int/healthmetrics/en/>. Accessed May 26, 2010.

## Appendix A: Business process matrix

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measurable Outcomes
2.1	<a href="#">Beneficiary Management</a>	Enroll <a href="#">beneficiary</a>	Verify identity and <a href="#">eligibility</a> in a <a href="#">timely</a> manner of persons seeking access to <a href="#">benefit plan services</a>	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• Financial information</li> <li>• Geographic information</li> <li>• Qualifying criteria (see <a href="#">qualifying conditions</a>)</li> <li>• Proof of identity (e.g., national <a href="#">identification card</a>, personal identification number, <a href="#">biometric information</a>, photos)</li> <li>• Medical history</li> <li>• Current medical condition</li> </ul>	<ul style="list-style-type: none"> <li>• Time-based <a href="#">eligibility</a> determination</li> <li>• Beneficiary identifier</li> <li>• <a href="#">Benefit plan</a> number</li> <li>• Benefits class</li> <li>• <a href="#">Benefits plan</a> detail</li> <li>• <a href="#">Proof of coverage</a></li> <li>• Feed into data repository</li> </ul>	<ul style="list-style-type: none"> <li>• Validate identity documents</li> <li>• Record information in data repository</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Eligibility</a> is determined as approved or rejected.</li> <li>• Approved person receives <a href="#">proof of coverage</a> (e.g. I.D. card)</li> <li>• Assign benefits class</li> <li>• <a href="#">Benefits plan</a></li> <li>• Accurate list of <a href="#">beneficiary</a></li> </ul>
2.2	<a href="#">Beneficiary Management</a>	Assign <a href="#">beneficiary</a> to a <a href="#">Primary Care Provider (PCP)</a> or <a href="#">primary care unit</a>	<p>Assign <a href="#">beneficiary</a> to participating <a href="#">PCPs</a> or <a href="#">primary health</a> units based on rules (i.e., geography, load of <a href="#">beneficiary</a>)</p> <p>Allow <a href="#">beneficiary</a> to select <a href="#">PCP</a> or <a href="#">primary health</a> units from available list</p>	<ul style="list-style-type: none"> <li>• <a href="#">beneficiary</a> identifier</li> <li>• <a href="#">Provider identifier</a></li> <li>• Census</li> <li>• Benefit class</li> <li>• <a href="#">Benefit plan</a></li> <li>• Physical proximity (e.g. work or home)</li> <li>• List of available <a href="#">providers</a></li> <li>• Family relationships</li> <li>• Maximum number of <a href="#">beneficiaries</a> to which a <a href="#">provider</a> can attend</li> </ul>	<ul style="list-style-type: none"> <li>• Provider <a href="#">capitation</a> list</li> <li>• Provider <a href="#">roster</a></li> <li>• Notification of <a href="#">primary provider</a></li> </ul>	<ul style="list-style-type: none"> <li>• List of available <a href="#">providers</a></li> <li>• <a href="#">Roster</a> size calculation</li> <li>• <a href="#">Roster</a> associations</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Providers</a> receives <a href="#">beneficiary</a> list/<a href="#">roster</a></li> <li>• <a href="#">Beneficiary</a> receives notification of <a href="#">primary provider</a></li> <li>• Accurate list of <a href="#">beneficiary</a> and selected/ assigned <a href="#">PCP</a> or <a href="#">primary care unit</a></li> </ul>
2.3a	<a href="#">Beneficiary Management</a>	<a href="#">Eligibility</a> inquiry by	Provide accurate and timely	<ul style="list-style-type: none"> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• <a href="#">Provider identifier</a></li> </ul>	<ul style="list-style-type: none"> <li>• Time-based <a href="#">eligibility</a> status</li> </ul>	<ul style="list-style-type: none"> <li>• Identity verification</li> <li>• <a href="#">Pre- authorization</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Provider</a> understands the</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
		provider	indication of whether presenting individual is eligible for <a href="#">health care coverage</a> at this point in time at this location and if specific <a href="#">services</a> to be rendered are covered by the individual's benefits plan	<ul style="list-style-type: none"> <li>• Benefits class</li> <li>• <a href="#">Benefit plan</a></li> <li>• <a href="#">Encounter date</a></li> <li>• <a href="#">Beneficiary</a> accumulator</li> <li>• Demographic criteria</li> <li>• Clinical criteria</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Benefit cap</a></li> <li>• <a href="#">Pre- authorization</a></li> <li>• <a href="#">Beneficiary</a> accumulators</li> </ul>		<p>extent to which <a href="#">services</a> rendered are covered by the individual's health care plan</p> <ul style="list-style-type: none"> <li>• Individual is informed of the extent to which services are covered under their health care plan</li> </ul>
2.3b	<a href="#">Beneficiary</a> Management	<a href="#">Eligibility</a> inquiry by <a href="#">beneficiary</a>	Provide Indication of whether <a href="#">beneficiary</a> is eligible for <a href="#">health insurance coverage</a> and details on specific <a href="#">services</a> covered by plan <a href="#">benefits</a>	<ul style="list-style-type: none"> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• <a href="#">Benefits</a> class</li> <li>• <a href="#">Benefit plan</a></li> <li>• Date of inquiry</li> <li>• Demographic criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Time-based <a href="#">eligibility</a> status</li> <li>• <a href="#">Benefit cap</a></li> <li>• <a href="#">Benefit Plan</a></li> <li>• Status of <a href="#">co-pays/co-insurance</a></li> <li>• <a href="#">Beneficiary</a> accumulators</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#">Beneficiary</a> receives information about <a href="#">services</a> covered by <a href="#">benefits plan</a>, indication of whether <a href="#">benefits cap</a> has been reached and totals for payment/<a href="#">co-payments</a> made to date (<a href="#">beneficiary</a> accumulators)</li> </ul>
2.4	<a href="#">Beneficiary</a> Management	<a href="#">Pre-authorization</a>	<p>Provider has secured timely assurance from insurer that proposed service will be admissible for payment through claim settlement</p> <p>Ensure beneficiary receives efficient and</p>	<ul style="list-style-type: none"> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• <a href="#">Provider identifier</a></li> <li>• <a href="#">Benefits</a> class</li> <li>• <a href="#">Benefit plan</a></li> <li>• Clinical information</li> <li>• Supporting documents</li> <li>• <a href="#">Treatment plan</a></li> <li>• <a href="#">Fee schedule</a></li> <li>• <a href="#">Diagnosis</a></li> </ul>	<ul style="list-style-type: none"> <li>• Approval with cost, service or unit boundaries or rejection</li> <li>• Approval/ provisional approval (<a href="#">services</a> can proceed but <a href="#">services</a> may not be covered) disapproval</li> <li>• Approval percentage</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#">Timely</a> response to <a href="#">pre- authorization</a></li> <li>• Approval of (time/cost and or unit based) list of <a href="#">services</a></li> <li>• Financial metrics</li> <li>• Fraud resolution</li> <li>• Supports quality of care</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
			<p>effective utilization of services</p> <p>Protect payer from unnecessary costs</p>		<p>(percentage of requests that are approved)</p> <ul style="list-style-type: none"> <li>Analysis of which <a href="#">services</a> are being rejected (what <a href="#">provider</a>, what <a href="#">services</a>)</li> </ul>		<ul style="list-style-type: none"> <li>Patient satisfaction</li> <li>Accounts of insurer notified</li> </ul>
2.5	<a href="#">Provider Management</a>	<a href="#">Register/empanel provider</a>	<p>Verify <a href="#">provider credentials</a> and qualified <a href="#">services</a> and establish <a href="#">network</a> assignments</p>	<ul style="list-style-type: none"> <li><a href="#">Provider</a> license</li> <li>Physical proximity</li> <li><a href="#">Qualifying criteria</a></li> <li>Maximum number of <a href="#">beneficiaries</a> to which a <a href="#">provider</a> can attend (i.e., level of <a href="#">services</a> available based on staff)</li> <li><a href="#">Provider</a> type (doctor, <a href="#">hospital</a>, health center, pharmacist, etc.)</li> <li><a href="#">Provider</a> banking information (e-payment)</li> </ul>	<ul style="list-style-type: none"> <li>Time-based validation of <a href="#">provider's</a> qualifications</li> <li>List of <a href="#">provider</a> qualified procedures and <a href="#">services</a></li> <li><a href="#">Provider identifier</a></li> <li><a href="#">Provider</a> type</li> <li><a href="#">Network referral</a> relationships</li> </ul>	<ul style="list-style-type: none"> <li>Physical assessment of <a href="#">provider</a></li> <li><a href="#">Credentialing</a></li> <li><a href="#">Network referrals</a> definition</li> <li><a href="#">Provider agreement</a></li> </ul>	<ul style="list-style-type: none"> <li>List of qualified/verified <a href="#">providers</a></li> <li>Updated list of qualified/verified <a href="#">providers</a></li> <li>List of <a href="#">credentialed services</a> assigned to each <a href="#">provider</a></li> <li>Updated list of qualified/verified <a href="#">providers</a></li> </ul>
2.6	<a href="#">Provider Management</a>	<a href="#">Provider agreement</a>	<ul style="list-style-type: none"> <li>Establish legal binding documents between health <a href="#">provider</a> and <a href="#">health insurance payer</a></li> <li>This <a href="#">agreement</a> may include:                             <ol style="list-style-type: none"> <li>What <a href="#">services</a> the <a href="#">provider</a> is</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Provider identifier</a></li> <li>Privacy restrictions</li> <li><a href="#">Fee schedule</a></li> <li>Previous <a href="#">agreement/contract</a></li> <li><a href="#">agreement</a> template</li> <li>Region of the <a href="#">provider</a> (there may be rural differentials in the fee schedule)</li> <li>Specialty of the</li> </ul>	<ul style="list-style-type: none"> <li>New <a href="#">agreement/contract</a> for a particular time period</li> <li>Signature on <a href="#">agreement</a> by <a href="#">provider</a> and <a href="#">health insurance payer</a></li> </ul>		<ul style="list-style-type: none"> <li><a href="#">Provider</a> and <a href="#">health insurance payer</a> to abide by a set of established rules, regulations, and <a href="#">fee schedule</a></li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measurable Outcomes
			<p>authorized to deliver (credentiating data)</p> <p>b) What fees the provider will receive for delivering services</p> <p>c) Agreement about how quickly the provider will be paid</p> <p>d) Any other agreement which the payer and provider agree to as part of the provision of service</p>	<p>provider (there may be a difference in fee amount based on the specialty)</p>			
2.7	Premium Collection	Premium collection	<p>Timely, accurate collection of money due from beneficiary and their sponsors (government, employer)</p>	<ul style="list-style-type: none"> <li>List of beneficiaries</li> <li>Beneficiary identifier</li> <li>Sponsor classification (i.e., company, government)</li> <li>Benefit class</li> <li>Premium rate</li> <li>Payment status (arrear, current)</li> <li>Eligibility status</li> </ul>	<ul style="list-style-type: none"> <li>Bill sent to beneficiary and/ or sponsor</li> <li>Financial transaction to general ledger (GL) to show premiums due</li> <li>Financial transaction to GL when premium payment is received</li> <li>Update eligibility status</li> <li>Update payment status</li> </ul>		<ul style="list-style-type: none"> <li>Percentage of collected vs. outstanding premium</li> <li>Lower per transaction costs to cost as a percentage of the overall transaction cost</li> <li>Received all premiums due equal to predicted amount</li> <li>Minimize number of delinquent premium</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
2.8a	<a href="#">Claims Management</a>	<a href="#">Claims processing</a>	<a href="#">Timely</a> and accurate <a href="#">processing</a> of <a href="#">claims</a> to determine the validity of the <a href="#">claim</a> and the amount to be paid.	<ul style="list-style-type: none"> <li>• <a href="#">Claim</a></li> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• Adjustments</li> <li>• Voids</li> <li>• <a href="#">Benefit plan</a></li> <li>• Re-submitted <a href="#">claims</a></li> <li>• <a href="#">Claims</a>-related policies</li> <li>• <a href="#">Pre- authorization</a> match</li> <li>• <a href="#">Eligibility</a> status</li> <li>• <a href="#">Benefit</a> class</li> <li>• <a href="#">Beneficiary</a> accumulators</li> <li>• <a href="#">Co-insurance</a></li> <li>• <a href="#">Copayments</a></li> <li>• <a href="#">Deductibles</a></li> <li>• <a href="#">Fee schedule</a></li> <li>• <a href="#">Provider identifier</a></li> <li>• <a href="#">Provider</a> accumulators</li> </ul>	<ul style="list-style-type: none"> <li>• Acknowledgement to <a href="#">provider</a> of receipt of <a href="#">claim</a></li> <li>• <a href="#">Claim</a> identifier</li> <li>• <a href="#">Claim</a> status (<a href="#">in process</a>, partially approved, approved, rejected, requires more information, in medical review)</li> <li>• Amount approved for <a href="#">claim</a></li> <li>• <a href="#">Explanation of Benefits</a></li> <li>• Financial transaction to GL</li> <li>• Update <a href="#">beneficiary</a> accumulators</li> <li>• Update <a href="#">provider</a> accumulators</li> <li>• Line items for <a href="#">claims</a> advice</li> </ul>	<ul style="list-style-type: none"> <li>• Registration of incoming <a href="#">claim</a> identifier</li> <li>• Assign <a href="#">claim</a> identifier</li> <li>• Pre-process and edit <a href="#">claim</a> data</li> <li>• Aggregate, merge and <a href="#">batch claims</a> data</li> <li>• Manage <a href="#">claims</a> exceptions</li> <li>• Apply <a href="#">adjudication</a> rules (skip to approve or reject)</li> <li>• Flag for <a href="#">fraud</a> and abuse</li> <li>• Route for medical review</li> <li>• Approve and prepare payment transaction</li> <li>• <a href="#">Reject</a> and assign reason code</li> <li>• Update <a href="#">beneficiary</a> and <a href="#">provider</a> accumulators</li> <li>• Determine line items for <a href="#">claim</a> (confirm for proper term: advice, <a href="#">Explanation of Benefits</a> statement,</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Claim</a> assigned status and determination of payment</li> <li>• <a href="#">Claims</a> status sent to <a href="#">provider</a>, beneficiary and other appropriate authorities</li> <li>• <a href="#">Explanation of Benefits</a> sent to <a href="#">provider</a> and/or <a href="#">beneficiary</a></li> <li>• <a href="#">Timeliness</a> of <a href="#">claims processing</a></li> <li>• First time claim pass rate</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
2.8b	<a href="#">Claims Management</a>	<a href="#">Claims</a> status inquiry	Provide <a href="#">timely</a> status of submitted <a href="#">claims</a>	<ul style="list-style-type: none"> <li>• <a href="#">Claim</a> identifier</li> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• <a href="#">Provider identifier</a></li> <li>• <a href="#">Encounter date</a></li> </ul>	<ul style="list-style-type: none"> <li>• Time-based <a href="#">claim</a> status</li> <li>• <a href="#">Claim</a> status</li> <li>• ( e.g., not received, In process, partially approved, approved, rejected, requires more information, In medical review)</li> </ul>	receipt, remittance)	<ul style="list-style-type: none"> <li>• Time-based <a href="#">claim</a> status</li> <li>• Payment amount approved for <a href="#">claim</a></li> <li>• <a href="#">Explanation of Benefits</a></li> </ul>
2.8c	<a href="#">Claims Management</a>	<a href="#">Claims dispute</a> and appeals	Facilitate <a href="#">timely</a> resolution through secondary review of <a href="#">adjudicated claims</a> which parties (e.g., <a href="#">beneficiary</a> and <a href="#">insurance</a> provider OR <a href="#">provider</a> and <a href="#">insurance</a> provider) do not agree	<ul style="list-style-type: none"> <li>• <a href="#">Claim</a> identifier</li> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• <a href="#">Provider identifier</a></li> <li>• <a href="#">Claim</a> information (e.g., <a href="#">encounter date</a>, <a href="#">claim</a> number)</li> <li>• Dispute notes</li> </ul>	<ul style="list-style-type: none"> <li>• Change <a href="#">claim</a> status to dispute</li> <li>• Input into possible policy change</li> <li>• Advice to <a href="#">claim office</a> “factory” on how to deal with type of <a href="#">claim</a> in future</li> <li>• Amount approved for <a href="#">claim</a></li> <li>• <a href="#">Claim</a> identified for reprocessing</li> <li>• Financial transaction to GL (e.g., accounts receivable/payable)</li> <li>• Case referred to <a href="#">arbitration</a></li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#">Settlement of dispute</a></li> </ul>
2.8d	<a href="#">Claims Management</a>	<a href="#">Claims</a> adjustment and voids	<a href="#">Timely processing</a> of approved modified payment amounts for <a href="#">claims</a> that have been through the <a href="#">claims dispute process</a>	<ul style="list-style-type: none"> <li>• <a href="#">Claim</a> identifier</li> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• <a href="#">Provider identifier</a></li> <li>• <a href="#">Claim</a> information (<a href="#">Encounter date</a>, <a href="#">claim</a> number)</li> <li>• <a href="#">Claim</a> adjustment amount</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Explanation of Benefits</a> sent to <a href="#">provider</a> and/or <a href="#">beneficiary</a></li> <li>• Financial transaction to GL (positive if amount has been adjusted up, negative</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#">Claim</a> status sent to <a href="#">provider</a></li> <li>• <a href="#">Explanation of Benefits</a> sent to <a href="#">provider</a> and/or <a href="#">beneficiary</a></li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
				<ul style="list-style-type: none"> <li>Increase of <a href="#">claim</a> payout</li> <li>Decrease of <a href="#">claim</a> payout</li> <li>Void</li> </ul>	if amount has been adjusted down or <a href="#">claim</a> voided) <ul style="list-style-type: none"> <li>Update <a href="#">beneficiary</a> accumulators</li> <li>Update <a href="#">provider</a> accumulators</li> </ul>		
2.9a	Accounting	Payment to <a href="#">providers</a>	Pay approved/recoup <a href="#">claims</a> or <a href="#">reimbursements</a> (per visit/service, <a href="#">capitation</a> payment) in a <a href="#">timely</a> manner to designated, plan-approved <a href="#">providers</a>	<ul style="list-style-type: none"> <li>Financial transactions from accounts payable and receivable GL</li> <li>(approved claim, adjusted claim, void claim)</li> <li><a href="#">Capitation</a> list</li> </ul>	<ul style="list-style-type: none"> <li>Payment voucher (i.e., check, cash, money order, electronic fund transfer)</li> <li>Feed into data repository</li> <li>Update <a href="#">provider</a> accumulators</li> </ul>		<ul style="list-style-type: none"> <li>Payment of approved <a href="#">claims</a> or <a href="#">capitation reimbursement</a> is paid in the correct amount to the correct <a href="#">provider</a> in a <a href="#">timely</a> manner</li> </ul>
2.9b	Accounting	Accounts receivable	Record financial transactions in general ledger for monies due to the insurance <a href="#">provider</a> (i.e., <a href="#">capitation</a> payments, donations, <a href="#">premium</a> )	<ul style="list-style-type: none"> <li>Summary of current outstanding <a href="#">premiums</a></li> <li>Summary of <a href="#">premium</a> amounts received to date</li> <li>Summary of subsidy received from national/regional government agencies</li> <li>Summary of <a href="#">subsidy</a> to be received</li> <li>Interest from investments</li> </ul>	<ul style="list-style-type: none"> <li>Report (daily/weekly) to policy maker and/or donor.</li> <li>Update to general ledger</li> <li>Note general ledger is not covered under this step</li> </ul>		<ul style="list-style-type: none"> <li>Visibility to incoming funds</li> <li>Bank <a href="#">reconciliation</a> with the incoming funds (must match)</li> </ul>
2.9c	Accounting	Accounts payable	<ul style="list-style-type: none"> <li>Record financial outflows accurately to</li> </ul>	<ul style="list-style-type: none"> <li>Summary of <a href="#">provider</a> payments paid to date</li> <li>Standard business operations (non-claim</li> </ul>	<ul style="list-style-type: none"> <li>Update to GL</li> <li>Report which summarizes total payment exposure</li> </ul>		<ul style="list-style-type: none"> <li>Visibility to outgoing funds</li> <li>Bank <a href="#">reconciliation</a> with the outgoing</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
			<p>GL</p> <ul style="list-style-type: none"> <li>Report out to national government and/or donor who provided the dollars (<a href="#">reimbursement</a> to <a href="#">beneficiary</a>, government, provider)</li> </ul>	<p>related) (e.g., utilities, consulting services, vendors)</p> <ul style="list-style-type: none"> <li><a href="#">Premium</a> refunds</li> <li>Miscellaneous <a href="#">claims</a> (e.g., those lost on appeal)</li> </ul>	(daily/weekly)		funds
3.0	<a href="#">Care Management</a>	Manage costs of <a href="#">catastrophic cases</a>	Reduce costs of managing <a href="#">catastrophic cases</a>	<ul style="list-style-type: none"> <li><a href="#">Diagnosis</a></li> <li><a href="#">Treatment plan</a> (including all current therapies including <a href="#">pharmaceutical</a> therapies)</li> <li><a href="#">Eligibility</a></li> <li>Demographics</li> <li>Geography (address for <a href="#">beneficiary</a>)</li> <li><a href="#">Provider</a> list</li> <li>Rules</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Treatment</a> needs assessment</li> <li><a href="#">Treatment plan</a> or clinical pathway</li> <li>Clinical recommendations to attending physicians</li> <li><a href="#">Care management</a></li> <li>Case identifier</li> <li>List of <a href="#">beneficiaries</a> with <a href="#">catastrophic management</a> needs</li> <li><a href="#">Provider</a> list</li> <li>Assignment of <a href="#">case worker</a></li> <li>Assignment of restrictive <a href="#">benefits plan</a></li> </ul>	<ul style="list-style-type: none"> <li>Identify cases whose liability will exceed cost threshold</li> <li>Monitor these cases and assess <a href="#">treatment plans</a> to see if there are ways to reduce costs.</li> <li>Communicate with clinicians at the <a href="#">hospital</a> to suggest a <a href="#">cost-effective treatment plan</a>.</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">catastrophic case</a> costs are reduced.</li> </ul>
3.1a	<a href="#">Care Management</a>	Identify <a href="#">chronic disease management cases</a>	Identify target <a href="#">beneficiaries</a> for <a href="#">chronic disease management programs</a>	<ul style="list-style-type: none"> <li><a href="#">Diagnosis</a></li> <li><a href="#">Eligibility</a></li> <li>Demographics</li> <li>Geography (address for <a href="#">beneficiary</a>)</li> </ul>	<ul style="list-style-type: none"> <li>List of <a href="#">beneficiaries</a> with <a href="#">chronic disease</a> management needs</li> <li><a href="#">Care management</a> case identifier</li> </ul>		<ul style="list-style-type: none"> <li>List of <a href="#">beneficiaries</a> in need of <a href="#">care management</a></li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
				<ul style="list-style-type: none"> <li>• <a href="#">Treatment plan</a></li> <li>• <a href="#">Pharmaceutical</a> treatments</li> <li>• <a href="#">Provider</a></li> <li>• Rules</li> </ul>			
3.1b	<a href="#">Care Management</a>	Enroll into <a href="#">chronic disease management programs</a>	Enroll target <a href="#">beneficiary</a> into specific <a href="#">chronic disease management programs</a> to promote early screening, <a href="#">diagnosis</a> and <a href="#">treatment</a> to ensure appropriate <a href="#">cost-effective</a> medical <a href="#">services</a> are identified, planned, and obtained	<ul style="list-style-type: none"> <li>• List of <a href="#">beneficiaries</a> in need of <a href="#">care management</a> programs</li> <li>• Geography</li> <li>• <a href="#">Diagnosis</a></li> <li>• <a href="#">Treatment plan</a></li> </ul>	<ul style="list-style-type: none"> <li>• List of <a href="#">beneficiaries</a> enrolled in <a href="#">chronic disease management programs</a></li> <li>• <a href="#">Beneficiary treatment</a> needs assessment</li> <li>• <a href="#">Treatment plan</a></li> <li>• <a href="#">Provider</a> list</li> </ul>	<ul style="list-style-type: none"> <li>• Provide list of qualified and approved <a href="#">providers</a> to <a href="#">beneficiary</a></li> <li>• <a href="#">Home visit</a> to <a href="#">beneficiary</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Beneficiary</a> enrolled in care program</li> <li>• <a href="#">Treatment plan</a> established for <a href="#">beneficiary</a> enrolled in care program</li> </ul>
3.1 c	<a href="#">Care Management</a>	Monitor <a href="#">chronic disease management cases</a>	Monitor and assess <a href="#">beneficiary's care management</a> progress to ensure appropriate and <a href="#">cost effective services</a> are obtained and assess <a href="#">treatment plan</a> to determine if modifications are needed	<ul style="list-style-type: none"> <li>• List of <a href="#">beneficiary</a> enrolled in <a href="#">care management</a> programs</li> <li>• <a href="#">Diagnosis</a></li> <li>• <a href="#">Treatment plan</a></li> <li>• <a href="#">Pharmaceutical</a> treatments</li> </ul>	<ul style="list-style-type: none"> <li>• Determination of whether <a href="#">beneficiary</a> is obtaining appropriate care</li> <li>• Determination of whether <a href="#">beneficiary's treatment</a> is <a href="#">cost effective</a></li> <li>• Determination of whether a <a href="#">treatment plan</a> modification is necessary</li> </ul>		<ul style="list-style-type: none"> <li>• Appropriate treatment provided</li> <li>• <a href="#">Cost effective treatment</a> provided</li> <li>• <a href="#">Chronic case</a> costs are reduced</li> </ul>
3.2	<a href="#">Utilization Management (UM)</a>	<a href="#">Utilization management</a>	<ul style="list-style-type: none"> <li>• Determine over-use, under-use and misuse of <a href="#">benefits</a> and</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Adjudicated</a> claims</li> <li>• Clinical data (pharmacy, clinical <a href="#">services</a>, usage data,</li> </ul>	<ul style="list-style-type: none"> <li>• Report on <a href="#">provider/prescription utilization</a> versus alternative</li> </ul>		<ul style="list-style-type: none"> <li>• X time period report (monthly) which describes admissions of</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
			<p>take action to resolve</p> <ul style="list-style-type: none"> <li>Optimize pharmacy use</li> </ul>	<p>etc.)</p> <ul style="list-style-type: none"> <li>Number of known <a href="#">patients</a></li> <li><a href="#">Length of stay (LOS)</a></li> </ul>	<p>benchmarks that are culturally accepted</p> <ul style="list-style-type: none"> <li>Corrective action</li> <li>Update <a href="#">provider credentialing</a> status</li> <li>Reconciliation of <a href="#">capitation</a> payment (counterbalance of <a href="#">utilization</a> rates)</li> <li>Identify need for corrective action based on <a href="#">utilization</a></li> <li>Comparison chart of <a href="#">provider</a> against peer relationship</li> </ul>		<p><a href="#">beneficiaries</a> per 1,000 and <a href="#">hospital</a> days per 1,000</p> <ul style="list-style-type: none"> <li>X time period report which describes cost per <a href="#">beneficiary</a> per year</li> <li>Report on <a href="#">beneficiary</a> visits/1,000 to <b>physician per year according</b> to country and/or geographic baseline</li> <li>Report on <a href="#">prescription</a> per <a href="#">beneficiary</a> per year</li> <li>Report on procedures/1,000 per year</li> </ul>
3.3	<a href="#">Utilization Management (UM)</a>	Pharmacy benefits management (PBM)	<ul style="list-style-type: none"> <li>Validate appropriate use of prescribed <a href="#">medicines</a></li> <li>Guard against over-use, under-use and misuse of <a href="#">pharmaceutical</a> therapies and take action to resolve. (Note: PBM is an integral part of <a href="#">UM</a> procedures.</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Adjudicated claims</a></li> <li>Clinical data</li> <li>Pharmacy data</li> <li>Known benchmarks</li> <li>Number of known <a href="#">patients</a></li> </ul>	<ul style="list-style-type: none"> <li>Report on <a href="#">provider</a> utilization of <a href="#">pharmaceuticals</a> versus alternative benchmarks that are culturally accepted</li> <li>Letters to <a href="#">provider</a> based on alternative therapies or use of <a href="#">generic drugs</a></li> <li>Lock in <a href="#">member</a> to specific pharmacy</li> </ul>		<ul style="list-style-type: none"> <li>X time period report (quarterly) which describes in detail prescribing behavior usually by region, by medical specialty, by facility</li> <li>Reduction of cost of pharmacy benefits</li> <li>Adherence to use of lower cost medications (<a href="#">generic substitutions</a>)</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
			It is singled out here in this process matrix because of the inherent threat from escalating drug prices, misuse of <a href="#">drug formulary</a> , and overprescribing habits on the part of some <a href="#">providers</a> )				
3.4	<a href="#">Provider Quality Management</a>	<a href="#">Provider quality management</a>	Ensure that the <a href="#">provider</a> has delivered the necessary contracted <a href="#">quality of service</a>	<ul style="list-style-type: none"> <li>• <a href="#">Formulary</a></li> <li>• <a href="#">Service-level agreement</a> with <a href="#">provider</a></li> <li>• <a href="#">Clinical protocol</a> and <a href="#">guidelines</a></li> <li>• Claims</li> <li>• Case notes</li> <li>• <a href="#">Patient</a> records</li> <li>• <a href="#">Complaints</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Quality review</a> report</li> <li>• Quality rating</li> <li>• Update <a href="#">provider credentialing</a> status</li> </ul>		<ul style="list-style-type: none"> <li>• Re-<a href="#">admission</a> rates</li> <li>• <a href="#">Mortality rates</a></li> <li>• Infection rates</li> <li>• Caesarean section (c-section) rates</li> <li>• Decision on whether or not to contract for <a href="#">provider</a> at a particular fee</li> </ul>
3.5	Financial Operations Management	<a href="#">Actuarial management</a>	Provide accurate projections for health spending projections for specified time period	<ul style="list-style-type: none"> <li>• <a href="#">Life expectancy</a></li> <li>• <a href="#">Birth rate</a></li> <li>• <a href="#">Death rate</a></li> <li>• Economic situation</li> <li>• Geography</li> <li>• Family size</li> <li>• <a href="#">Pre-existing conditions</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Actuarial model</a> report which projects health spending</li> </ul>		
3.6	Financial Operations Management	<a href="#">Provider rate</a>	Optimize payments to reflect realistic economic conditions while minimizing	<ul style="list-style-type: none"> <li>• <a href="#">Standards of physician care</a> (i.e., national boards), fair market value for <a href="#">services</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Fee schedule</a></li> <li>• Update <a href="#">provider</a> payment amount</li> </ul>		<ul style="list-style-type: none"> <li>• Establish a <a href="#">fee schedule</a> such that the maximum number of persons</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measureable Outcomes
			<a href="#">medical loss ratio</a>	<ul style="list-style-type: none"> <li>• <a href="#">Medical loss ratio</a></li> </ul>			can receive <a href="#">services</a> while ensuring sufficient supply of <a href="#">providers</a>
3.7	Financial Operations Management	Set <a href="#">premium</a>	Optimize <a href="#">premiums</a> to reflect realistic economic conditions while minimizing <a href="#">medical loss ratio</a> .	<ul style="list-style-type: none"> <li>• <a href="#">Fee schedule</a></li> <li>• <a href="#">Actuarial projections</a> (i.e. health spending projections)</li> <li>• Claims history</li> <li>• <a href="#">Benefit plan</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Premium</a> rate schedule (<a href="#">premiums</a> for each <a href="#">benefit plan</a>)</li> <li>• Update <a href="#">premium</a> collection amount</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#">Premium</a> rates schedule for each <a href="#">benefits</a> class</li> <li>• Sum of <a href="#">premiums</a> sufficient to meet the cost for medical <a href="#">claims</a> and reserve funds for the year</li> </ul>
3.8	Financial Operations Management	Reserve fund management	Assure sustainability of the <a href="#">health insurance</a> scheme, and to buffer the scheme from unpredicted liabilities by maximizing investment income.	<ul style="list-style-type: none"> <li>• Excess income from previous years</li> <li>• Contribution from the treasury specifically ear-marked for “reserves”</li> <li>• Other sources of income which can be channeled to the reserve fund (such as settlement of litigation in favor of the reserve fund, windfall “profits,” etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Reserve fund should be an amount as a percentage of predicted <a href="#">claims</a> payouts for the next year of a percentage which is consistent with international reserve accounting standards. Normally the fiscal oversight agency of a country (insurance commission, central bank, or the treasury) determines the percentage.</li> </ul>		<ul style="list-style-type: none"> <li>• Reserve fund reasonably assures the sustainability of the Fund</li> <li>• Reserve fund grows at a rate commensurate with other comparable reserve funds</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measurable Outcomes
3.9	<a href="#">Medical Loss</a>	Manage <a href="#">medical loss ratio (MLR)</a>	<ul style="list-style-type: none"> <li>Assure sustainability of the Fund by computing and/or analyzing <a href="#">MLRs</a> to understand where medical costs are being sustained and what the trend is in that spending</li> <li>Correct and balance any inequities or variances across regional boundaries and across service provision types</li> </ul>	<ul style="list-style-type: none"> <li>Global <a href="#">MLR</a>: the numerator = spending for medical <a href="#">services</a> (total <a href="#">claims</a> payment and <a href="#">capitation</a> outlays); denominator = total income to the Fund</li> <li>Subpopulation <a href="#">MLR</a>: the numerator = spending for medical <a href="#">service</a> (total <a href="#">claims</a> payment and <a href="#">capitation</a> outlays for the subpopulation); denominator = total income to the Fund from that subpopulation (from individuals or their sponsors)</li> </ul>	<ul style="list-style-type: none"> <li>Global <a href="#">MLR</a></li> <li>Subpopulation <a href="#">MLRs</a></li> <li>Other special <a href="#">MLR</a></li> </ul>	<ul style="list-style-type: none"> <li>Compute <a href="#">medical loss ratios</a> for various segments of the <a href="#">beneficiary</a> population (e.g., by age, by gender, by <a href="#">chronic disease</a> classification, by type of intervention [<a href="#">hospital</a> stay, <a href="#">specialty</a> care, etc.], by region, etc.)</li> <li>Compare <a href="#">MLR</a> from previous periods to determine historical trends in <a href="#">healthcare</a> spending</li> <li>Action plans on how these trends can be better managed, and what kind of interventions might be needed (regulation, legislative changes, changes to <a href="#">health insurance policy</a> and directives, training, etc.) to lower the <a href="#">MLR</a></li> <li>Check to see whether the interventions had the desired effect</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of <a href="#">claims</a> costs or increase of revenues</li> <li><a href="#">MLR</a> sufficient to pay all <a href="#">claims</a> and be able to maintain reserve fund at appropriate level</li> </ul>

Determining Common Requirements for National Health Insurance Information Systems

Ref. #	Process Group	Process	Objective	Input	Output	Task Set	Measurable Outcomes
3.10	<a href="#">Audit/Fraud Management</a>	Identify <a href="#">fraudulent cases</a>	Identify cases of unusual patterns of insurance use that demonstrate suspicious <a href="#">utilization</a> of program benefits by <a href="#">providers</a> and <a href="#">beneficiaries</a>	<ul style="list-style-type: none"> <li>• <a href="#">Provider identifier</a></li> <li>• <a href="#">Beneficiary</a> identifier</li> <li>• <a href="#">Benefit plan</a></li> <li>• <a href="#">Claims</a> identifier</li> <li>• <a href="#">Provider</a> accumulators</li> <li>• <a href="#">Beneficiary</a> accumulators</li> <li>• Medical history</li> <li>• <a href="#">Provider</a> performance</li> <li>• <a href="#">Beneficiary</a> benefits utilization</li> </ul>	<ul style="list-style-type: none"> <li>• List of suspected cases</li> <li>• <a href="#">Fraud</a> case identifier</li> <li>• Case inquiry</li> </ul>		<ul style="list-style-type: none"> <li>• List of suspected cases</li> <li>• Case status</li> <li>• Percentage of <a href="#">fraudulent claims</a></li> </ul>
3.11	<a href="#">Audit/Fraud Management</a>	Manage <a href="#">fraudulent cases</a>	Manage identified cases of suspicious program benefit <a href="#">utilization</a> to closure	<ul style="list-style-type: none"> <li>• List of suspected cases</li> <li>• Inquiries</li> <li>• Evidence</li> </ul>	<ul style="list-style-type: none"> <li>• Corrective action (i.e., remove <a href="#">beneficiary</a>, remove <a href="#">provider</a>, file charges with court)</li> </ul>		<ul style="list-style-type: none"> <li>• List of verified <a href="#">fraudulent claims</a></li> <li>• Plan of corrective actions</li> </ul>

## Appendix B: Glossary of health insurance terms

<b>access to healthcare</b> <i>National Policy</i>	A person's ability to obtain affordable medical care on a timely basis.
<b>accreditation</b> <i>Performance Management</i>	An evaluative process in which a health care organization undergoes an examination of its operating procedures to determine whether the procedures meet designated criteria as defined by the accrediting body and to ensure that the organization meets a specified level of quality. [3]  Related to: <a href="#">licensure</a>
<b>actuarial management</b> <i>Scheme Policy</i>	Actuarial management uses financial modeling of products affected by member demographics and actuarial projections to fine-tune benefit design and attract a balanced pool of risks. Tools for actuarial management in the health insurance industry include underwriting and risk-based pricing, and the maintenance of actuarial reserves.
<b>actuarial projections</b> <i>Scheme Policy</i>	An actuarial projection is a prediction of monies which the insurance scheme will need to pay out in a following period (next year, next 5 years, etc.) This prediction is based on many factors, some quantitative, some qualitative. A good actuary will attempt to understand the health of the population and the trend in that health status, the costs of medical care (called medical loss ratio) and the trend in those costs, the expectations for services from the population, the introduction of new medical technologies and their impacts, etc.
<b>actuarially sound</b> <i>Performance Management</i>	A health plan is considered to be actuarially sound when the amount of money in the fund and the current level of premiums are sufficient (on the basis of assumptions on interest, mortality, medical, claims, and employee turnover) to meet the liabilities that have accrued and that are accruing on a current basis.
<b>actuary</b> <i>Performance Management</i>	An insurance professional who performs the mathematical analysis necessary for setting insurance premium rates.
<b>acute care</b> <i>Scheme Policy</i>	Medical treatment rendered to people whose illnesses or medical problems are short-term or do not require long-term continuing care.
<b>acute disease</b> <i>Scheme Policy</i>	Illness characterized by a single episode of disease and constrained to a

fairly brief period of time.

**adjudication**  
*Factory* The process of deciding whether the claim is valid, and what the reimbursement should be for the claim. [2]

Synonym: vetting

**adjusted community rating (ACR)**  
*Scheme Policy* A rating method under which a health plan or health insurance payer divides its members into classes or groups based on demographic factors such as geography, family composition, and age, and then charges all members of a class or group the same premium. The plan cannot consider the experience of a class, group, or tier in developing premium rates. Also known as modified community rating.

**administration**  
*Factory* The cost center that includes the overall management and administration of the health care institution, general patient accounting, communication systems, data processing, patient admissions, public relations, professional liability and non-property-related insurance, licenses and taxes, medical record activities, and procurement of supplies and equipment.

**administrative costs**  
*Performance Management* Medical costs related to utilization review, insurance marketing, medical underwriting, agents' commissions, premium collection, claims processing, insurer profit, quality assurance programs, and risk management. Includes the costs assumed by a managed care plan for administrative services such as billing and overhead costs.

**admission**  
*Scheme Policy* The process of administrative registration for a patient in need of inpatient or outpatient medical care services.

**admissions per 1,000**  
*Performance Management* An indicator calculated by taking the total number of inpatient or outpatient admissions from a specific group (e.g., employer group, HMO population at risk) for a specific period of time (usually 1 year), dividing it by the average number of covered members in that group during the same period, and multiplying the result by 1,000. This indicator can be calculated for behavioral health or any disease in the aggregate and by modality of treatment (e.g., inpatient, residential, and partial hospitalization).

**admitting privilege**  
*Scheme Policy* The right granted to a doctor to admit patients to a particular hospital.

**adverse event**  
*Scheme Policy* Any harm a patient suffers that is caused by factors other than the patient's underlying condition. The most common of these is ADE = adverse drug events.

**adverse selection**  
*Scheme Policy* The tendency of people who have a greater-than-average likelihood of loss to seek health care coverage to a greater extent than individuals who have an average or less-than-average likelihood of loss. In other words, people often wait to be sick before they seek health insurance coverage if the plan is not mandatory. [3]

Synonym: antiselection

**age rating**  
*Scheme Policy* Technique for adjusting insurance premiums or capitation payments according to the age of the insured.

**ancillary services**  
*Scheme Policy* Services, other than those provided by a physician or hospital, which are related to a patient's care, such as laboratory work, x-rays, and anesthesia.

**applicant**  
*Scheme Policy* The person(s), employee, or entity applying for and signing the written application for a contract of health or managed care insurance or annuity, either on his or her own life or that of another.

**asymmetrical information**  
*Scheme Policy* Parties to a transaction have uneven access to relevant information that governs an informed choice.

**audit**  
*Performance Management* The process of independently checking accounts and other records by auditors professionally trained and accredited for the purpose. It involves producing for the shareholders or trustees financial statements verifying the validity and accuracy of the companies' accounts. Companies and institutions commonly engage in audit as an internal process within the organization to assist local management and to detect fraud or maladministration. Financial audit in health services has been an important tool in cost containment and efficiency studies; it is an essential requirement for ensuring public accountability.

**authorization**  
*Scheme Policy* A health plan's system of approving payment of benefits for services that satisfy the plan's requirements for coverage.

**autonomy**  
*Scheme Policy* An ethical principle which, when applied to managed care, states that health insurance payers and their providers have a duty to respect the

right of their members to make decisions about the course of their lives.

<b>average daily census (ADC)</b> <i>Performance Management</i>	The average number of patients in a health care facility per day. Derived by dividing the number of patient days for the year by the number of days the facility was open during the year.
<b>average daily patient load</b> <i>Performance Management</i>	Number of hospital inpatients, excluding live births, during a reporting period or discharged the same day.
<b>balance billing</b> <i>Scheme Policy</i>	In case a provider has a contract with the insurance scheme but does not agree to avoid requiring the insured to pay for any monies not paid under the scheme, the insured can become liable for the difference (the balance) between what the scheme has paid and what the provider had originally charged.
<b>balance sheet</b> <i>Performance Management</i>	The financial statement that shows a company's financial status on a specified date.
<b>batch</b> <i>Factory</i>	A collection of health insurance claims or payments in or on a computer system or health care information technology network.
<b>bed occupancy rate</b> <i>Performance Management</i>	A measure of the usage of beds during the reporting period that is derived by dividing the patient days in the reporting period by the bed days in the reporting period. [7]  Related to: length of stay
<b>behavioral health care</b> <i>Scheme Policy</i>	The provision of mental health and chemical dependency (or substance abuse) services.
<b>beneficiary</b> <i>Scheme Policy</i>	Any person eligible as either a subscriber or a dependent for a managed care service in accordance with a contract. Someone who is eligible for or receiving benefits under an insurance policy or plan. [7]  Synonym: enrollee
<b>benefit</b> <i>Scheme Policy</i>	The amount payable by the insurance company to a claimant, assignee, or beneficiary when the insured suffers a loss.
<b>benefit cap</b>	Total amount that a payer will reimburse for covered health care services

<i>Scheme Policy</i>	during a specified period.
<b>benefit design</b> <i>Scheme Policy</i>	The process a health insurance payer uses to determine which benefits or the level of benefits that will be offered to its members, the degree to which members will be expected to share the costs of such benefits, and how a member can access medical care through the health plan.
<b>benefit plan</b> <i>Scheme Policy</i>	Included coverage, co-payments and options.
<b>benefits package</b> <i>Scheme Policy</i>	Services covered by a health insurance plan and the financial terms of such coverage, including cost sharing and limitations on amounts of services. [7]
	Synonym: insurance package
<b>biometric identifier</b> <i>Scheme Policy</i>	An identifier based on some physical characteristic, such as fingerprints, DNA, or iris-scan.
<b>birth rate</b> <i>Performance Management</i>	The number of births related to the total population in a given group during a given period of time.
<b>brand-name drug</b> <i>Scheme Policy</i>	Prescription drugs marketed with a specific brand name by the company that manufactures it, usually the company which develops and patents it. [8]
	Antonym: <a href="#">generic drug</a>
<b>budgeting</b> <i>Performance Management</i>	A process that includes creating a financial plan of action that an organization believes will help it to achieve its goals, given the organization's forecast.
<b>cap</b> <i>Scheme Policy</i>	A limit placed on the amount that a health plan will pay in a specified period of time.
<b>capitation</b> <i>Scheme Policy</i>	Payment system in which providers are paid a certain amount of money for each of their patients, regardless of the amount of care rendered. The capitation payments are generally pre-paid (i.e., paid in advance), with the amount depending on the age and gender ("age-sex banding") and possibly other characteristics of the "roster" of patients who are assigned ("empaneled") to that provider. If left unchecked, capitation can

stimulate a perverse incentive known as "underutilization".

**care giver**  
*Scheme Policy* One who renders medical care for a sick, injured, disabled, or elderly patient. [7]

Related to: [provider](#)

**care management**  
*Scheme Policy* A set of activities which assures that every person served by the treatment system has a single approved care (service) plan that is coordinated, not duplicative, and designed to assure cost effective and good outcomes. Care managers will oversee a patient's journey through treatment.

**care maps**  
*Scheme Policy* Guidelines for suggested medical care and treatment. [7]

Related to: care plan, clinical pathway, treatment plan

**care network**  
*Scheme Policy* A family of primary care clinics, physicians, specialists, hospitals, and other health care professionals who provide a full range of health care services to members. Care networks decide whether members need referrals to see specialists within the care network.

**care plan**  
*Scheme Policy* A written plan for one's health care. [9]

Synonym: treatment plan

**carrier**  
*Scheme Policy* A private organization, usually an insurance company, which finances healthcare.

**carve-out**  
*Scheme Policy* The separation of a medical service (or a group of services) from the basic set of benefits in some way.

**case**  
*Scheme Policy* An insurance-covered illness, accident, injury, disease, or situation.

**case management**  
*Performance Management* A process of identifying plan members with special health care needs, developing a health care strategy that meets those needs, and coordinating and monitoring care.

**case manager** A nurse, doctor or social worker who arranges all services that are needed

<i>Performance Management</i>	to give proper health care to a patient or group of patients.
<b>case rate</b> <i>Scheme Policy</i>	Flat fee paid for a client's treatment based on their diagnosis or presenting problem. For this fee the provider covers all of the services the client requires for a specific period of time. Also bundled rate, or flat fee-per-case. Very often used as an intervening step prior to capitation. In this model, the provider is accepting some significant risk, but does have considerable flexibility in how it meets the client's needs.
<b>case-fatality rate</b> <i>Performance Management</i>	The proportion of persons with a particular condition who die from that condition. The denominator is the number of incident cases; the numerator is the number of cause-specific deaths among those cases.
<b>catastrophic case</b> <i>Scheme Policy</i>	Any medical condition where total cost of treatment (regardless of payment source) is expected to exceed a designated amount for the care set by the insurer.
<b>catastrophic coverage</b> <i>Scheme Policy</i>	Insurance coverage that is designed to protect the consumer from financial disaster in the case of a serious medical emergency. Because this type of coverage focuses primarily on the most expensive medical care, smaller expenses such as doctor visits or prescription drugs are usually not covered in catastrophic plans. Instead, these plans typically have high deductibles which must be met before the plan begins paying claims. Once the patient's out-of-pocket spending reaches a specified maximum amount, the plan covers all expenses beyond that amount.
<b>catastrophic illness</b> <i>Scheme Policy</i>	A very serious and costly health problem that could be life threatening or cause life-long disability. The cost of medical services alone for this type of serious condition could cause financial hardship.
<b>catastrophic loss</b> <i>Scheme Policy</i>	Large loss that does not lend itself to prediction.
<b>catchment area</b> <i>Scheme Policy</i>	The geographic area from which a health plan draws its patients.
<b>cause of disease</b> <i>National Policy</i>	A factor (characteristic, behavior, event, etc.) that directly influences the occurrence of disease. A reduction of the factor in the population should lead to a reduction in the occurrence of disease.
<b>centers of excellence</b>	Hospitals that specialize in treating particular illnesses, or performing

<i>Scheme Policy</i>	particular treatments, such as cancer or organ transplants.
<b>certification</b> <i>Factory</i>	The confirmation of certain characteristics of an object, person, or organization. This confirmation is often, but not always, provided by some form of external review, education, or assessment.
<b>chronic care</b> <i>Scheme Policy</i>	Long-term care of individuals with long-standing, persistent diseases or conditions. It includes care specific to the problem as well as other measures to encourage self-care, to promote health, and to prevent loss of function.
<b>chronic case</b> <i>Scheme Policy</i>	A patient with one or more medical conditions that persist for long periods of time or for the patient's lifetime.
<b>chronic disease</b> <i>Scheme Policy</i>	A medical problem that will not improve, lasts a lifetime, or recurs. [6]  Synonym: chronic illness
<b>churning</b> <i>Performance Management</i>	The practice of a provider seeing a patient more often than is medically necessary, primarily to increase revenue through an increased number of visits.
<b>claim</b> <i>Scheme Policy</i>	An itemized statement of health care services and their costs provided by a hospital, physician's office or other provider facility. Claims are submitted to the insurer or managed care plan by either the plan member or the provider for payment of the costs incurred.
<b>claim exception</b> <i>Factory</i>	A report, notification, alert, event or alarm that occurs as the result of failed processing or adjudication of a claim.
<b>claim item</b> <i>Factory</i>	An entity, object or record that either is intended to represent, is a dependency for, or is pertaining to a specific claim.
<b>claim load</b> <i>Performance Management</i>	The amount of benefits paid to the insureds in a period. Fluctuations in claim load in the short term are covered by contingency reserves and in the long run by contribution increases.
<b>claims analysts / examiners</b> <i>Factory</i>	Employees in the claims administration department who consider all the information pertinent to a claim and make decisions about the health

insurance payer's payment of the claim.

<b>claims arbitration</b> <i>Scheme Policy</i>	If a claim is denied, one can appeal. If the health plan offers arbitration, an independent third party reviews the dispute and recommends an outcome.
<b>claims investigation</b> <i>Factory</i>	The process of obtaining all the information necessary to determine the appropriate amount to pay on a given claim.
<b>claims management</b> <i>Factory</i>	The professional discipline that involves working with, in or on any aspect of planning, delivering, operating or supporting for one or more claim items or any and all solutions put in place to deal with such items
<b>claims processing</b> <i>Factory</i>	The process of receiving, reviewing, adjudicating, and processing claims. <a href="#">[3]</a>  Synonym: claims administration
<b>clearinghouse</b> <i>Performance Management</i>	Shared information within systems abiding by security and confidentiality issues which provide maximum benefit to all stakeholders.
<b>clinic</b> <i>Scheme Policy</i>	A facility for outpatient medical services.
<b>clinical audit</b> <i>Performance Management</i>	Health review of medical care for quality improvement purposes.
<b>clinical pathway</b> <i>Scheme Policy</i>	Multidisciplinary management tool based on evidence-based practice for a specific group of patients with a predictable clinical course, in which the different tasks (interventions) by the professionals involved in the patient care are defined, optimized and sequenced either by hour (ED), day (acute care) or visit (homecare). Outcomes are tied to specific interventions. <a href="#">[4]</a>  Related to: care maps, care plan, treatment plan
<b>clinical practice guidelines</b> <i>Scheme Policy</i>	Reports written by experts who have carefully studied whether a treatment works and which patients are most likely to be helped by it.
<b>clinical practice management</b>	The development and implementation of parameters for the delivery of

<i>Scheme Policy</i>	health care services to plan members.
<b>clinical protocols</b> <i>Scheme Policy</i>	Guidelines for treating specific injuries and conditions.
<b>clinical status</b> <i>Performance Management</i>	A type of outcome measure that relates to biological health outcomes.
<b>closed access</b> <i>Scheme Policy</i>	A provision which specifies that plan members must obtain medical services only from network providers through a primary care physician.
<b>closed formulary</b> <i>Scheme Policy</i>	The provision that only those drugs on a preferred list will be covered.
<b>code set</b> <i>Factory</i>	A set of codes used to encode data elements, such as tables of terms, medical concepts, medical diagnostic codes, or medical procedure codes.
<b>coding errors</b> <i>Factory</i>	Documentation errors in which a treatment is miscoded or the codes used to describe procedures do not match those used to identify the diagnosis.
<b>coinsurance</b> <i>Scheme Policy</i>	Spreads a risk too great for a single insurer over several companies that together act as coinsurers.
<b>co-insurance</b> <i>Scheme Policy</i>	Money that an individual is required to pay for services, after a deductible has been paid, often specified as a percentage.
<b>collection rate</b> <i>Performance Management</i>	The proportion of possible subscriptions from members that the insurer collects. It may be used as a measure of an insurer's efficiency/commercial orientation. <a href="#">[13]</a>  Synonym: compliance rate
<b>community</b> <i>Scheme Policy</i>	A specific group of people, often living in a defined geographical area, who share a common culture, values and norms, are arranged in a social structure according to relationships which the community has developed over a period of time. Members of a community gain their personal and social identity by sharing common beliefs, values and norms which have been developed by the community in the past and may be modified in the future. They exhibit some awareness of their identity as a group, and

share common needs and a commitment to meeting them.

**community financing  
scheme**  
*Scheme Policy*

See: [community-based health insurance \(CBHI\)](#)

**community rating**  
*Scheme Policy*

A rating method that sets premiums for financing medical care according to the health plan's expected costs of providing medical benefits to the community as a whole rather than to any sub-group within the community. Both low-risk and high-risk classes are factored into community rating, which spreads the expected medical care costs across the entire community.

**community rating by class  
(CRC)**  
*Scheme Policy*

The process of determining premium rates in which a health insurance payer categorizes its members into classes or groups based on demographic factors, industry characteristics, or experience and charges the same premium to all members of the same class or group.

**community-based health  
insurance (CBHI)**  
*Scheme Policy*

In CBHI, communities operate and control the financing of their health care typically through locally-based prepayment schemes. Under these schemes financing and delivery of primary care can be separated or integrated, but higher level care is usually purchased by the scheme. Affiliation is based on community membership, with strong involvement of the community the management of the system.

**compensation**  
*Scheme Policy*

Benefit payout.

**complaint**  
*Scheme Policy*

A health plan member's expression that his expectations regarding the product or the services associated with the product have not been met.

**compliance**  
*Scheme Policy*

Payment of contribution owed by members.

**compliance gap**  
*Performance Management*

Difference between contributions due and contributions collected.

**concurrent review**  
*Scheme Policy*

Monitoring the medical treatment and progress toward recovery, once a patient is admitted to a hospital, to assure timely delivery of services and to confirm the necessity of continued inpatient care. This monitoring is

under the direction of medical professionals.

<b>confidentiality</b> <i>Scheme Policy</i>	One of the aspects of the responsiveness of health systems whereby privacy in the context of privileged communication (such as patient-doctor consultations) and medical records is safeguarded.
<b>contingency reserves</b> <i>Scheme Policy</i>	Funds held by the insurer that are in excess of expected benefit payouts in order to cover unexpected events (contingencies) that cause fluctuations in benefit payouts. <a href="#">[13]</a>  Synonym: equalization reserves
<b>contract</b> <i>Scheme Policy</i>	A legal agreement between a payer and a subscribing group or individual that specifies rates, performance covenants, the relationship among the parties, schedule of benefits, and other pertinent conditions. The contract usually is limited to a 12-month period and is subject to renewal thereafter.
<b>contract management system</b> <i>Factory</i>	An information system that incorporates membership data and provider reimbursement arrangements and analyzes transactions according to contract rules.
<b>contract year</b> <i>Scheme Policy</i>	The period of time from the effective date of the contract to the expiration date of the contract. A contract year is typically 12 months long, but not necessarily from January 1 through December 31.
<b>contracted provider</b> <i>Scheme Policy</i>	Any hospital, skilled-nursing facility, extended-care facility, individual, organization, or licensed agency that has a contractual arrangement with an insurer for the provision of services under an insurance contract.
<b>contributions</b> <i>Scheme Policy</i>	When the insurance scheme is not mandatory, premiums paid for by the insured are called contributions.
<b>coordination of benefits (COB)</b> <i>Scheme Policy</i>	A provision in the contract that applies when a person is covered under more than one health insurance plan. It requires that payment of benefits be coordinated by all plans to eliminate over-insurance or duplication of benefits.
<b>copayment</b>	Money that an individual is required to pay for services, usually specified as an absolute amount: a predetermined (flat) fee that an individual pays

*Scheme Policy* for health care service, in addition to what the insurance covers.

**cost containment**  
*Performance Management* The method of preventing health care costs from increasing beyond a set level by controlling or reducing inefficiency and waste in the healthcare system.

**cost effectiveness**  
*Performance Management* The efficacy of a program in achieving given intervention outcomes in relation to the program costs.

**cost of illness**  
*Scheme Policy* The personal cost of acute or chronic disease. The cost to the patient may be an economic, social, or psychological cost or personal loss to self, family, or immediate community. The cost of illness may be reflected in absenteeism, productivity, response to treatment, peace of mind, quality of life, etc.

**cost sharing**  
*Scheme Policy* This occurs when the users of a healthcare plan share in the cost of medical care. Deductibles, co-insurance, and co-payments are examples of cost sharing.

**cost shifting**  
*Scheme Policy* The practice of charging more for services provided to paying patients or third-party payers to compensate for lost revenue resulting from services provided free or at a significantly reduced cost to other patients.

**coverage**  
*Scheme Policy* A person's health care costs are paid by their insurance or by the government.

**covered benefits**  
*Scheme Policy* Health services or items that are included in the health plan and that are partially or fully paid by the health plan. [9]

Synonym: covered services

**covered person**  
*Scheme Policy* A person who both meets the eligibility requirements of the contract and is enrolled for coverage under the contract.

**credentialing**  
*Scheme Policy* The review and verification process used to determine the current clinical competence of a provider and whether the provider meets the health insurance payer's preestablished criteria for participation in the network.

**cure provision** A provider contract clause which specifies a time period (usually 60-90

<i>Scheme Policy</i>	days) for a party that breaches the contract to remedy the problem and avoid termination of the contract.
<b>data dictionary</b> <i>Factory</i>	Defines what information is contained in a database, how the information will be used, and how the items in the database relate to each other. In the health sector, this dictionary is known as the Health Data Dictionary.
<b>data model</b> <i>Factory</i>	Defines how data formats fit together to create a healthcare system.
<b>date of issue</b> <i>Scheme Policy</i>	The date that an initial health care insurance contract premium is received and the contract owner information is approved.
<b>date of policy</b> <i>Scheme Policy</i>	The date appearing on the front page of a health insurance policy indicating when the policy went into effect.
<b>death-to-case ratio</b> <i>Performance Management</i>	The number of deaths attributed to a particular disease during a specified time period divided by the number of new cases of that disease identified during the same time period.
<b>deductible</b> <i>Scheme Policy</i>	The amount an individual must pay for healthcare expenses before insurance covers the costs.
<b>demand management</b> <i>Scheme Policy</i>	Promoting and reducing the need for medical services through such strategies as prevention, risk identification, risk management, and empowering consumers and providers to make appropriate choices about care through education and informed decision-making tools.
<b>demand rationing</b> <i>Scheme Policy</i>	Barrier to health insurance access as a result of financial constraints.
<b>denial of a claim</b> <i>Scheme Policy</i>	The refusal of an insurance company or carrier to honor a request by an individual (or his or her provider) to pay for health care services obtained from a health care professional. [8]  Synonym: rejected claim
<b>dependency ratio</b> <i>Performance Management</i>	An indicator used in population studies to measure the portion of the population which is economically dependent on active age group. It is

calculated as the sum of 0-14 year olds and over 60 or 65 year olds, depending on the working age limit considered, divided by the number of people aged between 15 and 59 or 64, respectively. For the purpose of the World Health Report, it is calculated as the sum of 0-14 year olds and over 65 year olds divided by the number of people aged between 15 and 64.

**dependent**  
*Scheme Policy* The lawful spouse and each unmarried child who is not employed on a regular full-time basis and who is dependent upon the declaring individual for support and maintenance. The term includes stepchildren, adopted children, and foster children. One who relies on a spouse, parent, grandparent, legal guardian, or one with whom they reside for health care insurance. The definition of dependent is subject to differing conditions and limitations between health care plans.

**diagnosis**  
*Scheme Policy* The specific or provisional name of a mental or physical disease, illness, disability, condition, or injury.

**diagnostic admission**  
*Scheme Policy* Entrance into a health care facility for tests and explorative interventions to establish a cause of illness.

**diagnostic and treatment codes**  
*Factory* Special codes that consist of a brief, specific description of each diagnosis or treatment and a number used to identify each diagnosis and treatment.

**diagnostic-related group (DRG)**  
*Factory* A system for classifying hospital stays according to the diagnosis of the medical problem being treated for the purposes of payment.

**direct access**  
*Scheme Policy* The ability to see a doctor or receive a medical service without referral from a primary care physician.

**direct patient expenditure**  
*Performance Management* Expenditure that relates directly to the individual care of a patient such as drugs, specific treatments received, and food.

**disability-adjusted life expectancy**  
*Performance Management* The number of healthy years of life that can be expected on average in a given population. It is generally calculated at birth, but estimates can also be prepared at other ages. Healthy life expectancy has the advantage of capturing all causes of disability across a population and relating them to life expectancy defined by mortality.

<b>disability-adjusted life years (DALYS)</b> <i>Performance Management</i>	The number of healthy years of life lost due to premature death and disability.
<b>discharge</b> <i>Scheme Policy</i>	A patient who was formally admitted to a hospital as an inpatient for observation, diagnosis, or treatment, with the expectation of remaining overnight or longer, and who is discharged under one of the following circumstances: (a) is formally discharged from care of the hospital and leaves the hospital; (b) transfers within the hospital from one type of care to another type of care; or (c) has expired.
<b>discharge planning</b> <i>Scheme Policy</i>	A process the health insurance payer uses to help determine what activities must occur before the patient is ready for discharge and the most efficient way to conduct those activities.
<b>disease management</b> <i>Scheme Policy</i>	Programs for people who have chronic illnesses, such as asthma or diabetes, that try to encourage them to have a healthy lifestyle, to take medications as prescribed, and that coordinate care. <a href="#">[6]</a>  Synonym: disease state management
<b>disenrollment</b> <i>Scheme Policy</i>	Ending a person's healthcare coverage with a health plan.
<b>drug formulary</b> <i>Scheme Policy</i>	A list of prescription drugs that are preferred by the health plan. <a href="#">[10]</a>  Synonym: formulary
<b>drug utilization</b> <i>Performance Management</i>	Drug prescription and usage patterns.
<b>drugs</b> <i>Scheme Policy</i>	Substances that, when taken into the living organism, may modify one or more of its functions. <a href="#">[12]</a>  Synonym: pharmaceuticals when vended in the health care sector
<b>edits</b> <i>Factory</i>	Criteria that if unmet will cause an automated claims processing system to "kick out" a claim for further investigation.
<b>effective date</b>	The date health insurance coverage begins.

*Scheme Policy*

**effectiveness**  
*Performance Management* The contribution which a program makes to individuals' utility or welfare, normally through better health, but not necessarily solely through better health. [5]

Synonym: efficacy

**efficiency**  
*Performance Management* Avoiding waste, including waste of equipment, supplies, ideas, and energy.

**elective procedure**  
*Scheme Policy* A health care procedure that is not an emergency and that the patient and doctor plan in advance.

**electronic claim**  
*Factory* The digital representation of a medical claim which is sent from provider to payer via a digital means rather than on paper.

**electronic medical record (EMR)**  
*Factory* A computerized record of a patient's clinical, demographic, and administrative data. [3]

Synonym: computer-based patient record (CPR), electronic health record, patient health record

**eligibility**  
*Scheme Policy* Validity for participation.

**eligibility checking**  
*Factory* The ability of the health management information system to verify an individual's coverage; as simple as verifying coverage or as complex as noting amount of coverage, type of insurance, covered services, co-payments, deductibles (totals and remaining balances), etc. [2]

Synonym: eligibility inquiry

**eligibility requirements**  
*Scheme Policy* Rules in group life, health, or disability insurance to determine which employees may enter into the plan. [7]

Synonym: eligibility rules

**emergency**  
*Scheme Policy* Sudden unexpected onset of illness or injury that requires the immediate care and attention of a qualified physician, and which, if not treated

immediately, would jeopardize or impair the health of the member, as determined by the payer's medical staff.

**emergency care**  
*Scheme Policy* Medical care rendered for a condition for which the patient believes acute life-threatening attention is required.

**empaneling**  
*Scheme Policy* Assigning patients to providers.

**empowerment for health**  
*Scheme Policy* A process through which people gain greater control over decisions and actions affecting their health.

**encounter**  
*Scheme Policy* One health care visit of any type by an enrollee to a provider of care or services.

**encounter date**  
*Scheme Policy* The date on which health care services are provided to a covered person. The encounter date, not the date on which the insurance company pays a healthcare claim, is the critical date in determining health insurance benefits. For example, a health insurance company will not pay a claim for health care services incurred prior to the effective date of the health insurance coverage. [2]

Synonym: date of service (DOS)

**encounter report**  
*Scheme Policy* A report that supplies management information about services provided each time a patient visits a provider.

**endorsement**  
*Scheme Policy* Amendment to the policy used to add or delete coverage.

**enrollment**  
*Scheme Policy* The number of members in an HMO or health insurance plan. The number of members assigned to a physician or medical group providing care under contract with an HMO. Also, can be the process by which a health plan signs up individuals or groups as subscribers.

**enterprise architecture (EA)**  
*Factory* An enterprise architecture (EA) is a description of the structure of an enterprise, which comprises enterprise components (business entities), the externally visible properties of those components, and the relationships (e.g. the behavior) between them. Enterprise architecture describes the terminology, the composition of enterprise components,

and their relationships with the external environment, and the guiding principles for the requirement (analysis), design, and evolution of an enterprise. This description is comprehensive, including enterprise goals, business process, roles, organizational structures, organizational behaviors, business information, software applications and computer systems.

**equitable**  
*Performance Management*

Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

**equity**  
*Performance Management*

Being fair or equal; equality of status in respect to some identifiable and controllable quality of importance, such as health, access to services, or exposure to risk. Equity in health implies that ideally everyone should have a fair opportunity to attain their full health potential and more pragmatically that no one should be disadvantaged from achieving this potential. People's needs guide the distribution of opportunities for well-being.

**error rate**  
*Factory*

A measure of the accuracy of information given and transactions processed.

**exclusion**  
*Scheme Policy*

A provision within a health insurance policy that eliminates coverage for certain acts, property, types of damage, or locations.

**exclusion period**  
*Scheme Policy*

A period of time when an insurance company can delay coverage of a preexisting condition. Sometimes this is called a preexisting condition waiting period.

**exclusive provider organization (EPO)**  
*Scheme Policy*

A healthcare benefit arrangement that is similar to a preferred provider organization in administration, structure, and operation but which does not cover out-of-network care.

**expiration date**  
*Scheme Policy*

The date on a health insurance policy that indicates when coverage ends.

**explanation of benefits (EOB)**  
*Scheme Policy*

A statement of coverage that lists any health services that have been provided as well as the amount billed and payment made by the health plan for those services.

<b>false claim</b> <i>Performance Management</i>	Incorrect or fraudulent medical insurance claim.
<b>fee for service</b> <i>Scheme Policy</i>	The health care provider is paid a fee based on what services the provider rendered.
<b>fee schedule</b> <i>Scheme Policy</i>	A complete listing of fees used by health plans to pay doctors or other providers. <a href="#">[9]</a>  Synonym: provider rate schedule
<b>fiduciary management</b> <i>Scheme Policy</i>	Fiduciary management is an approach to asset management that involves an asset owner appointing a third party to manage the total assets of the asset owner on an integrated basis through a combination of advisory and delegated investment services, with a view to achieving the asset owner's overall investment objectives.
<b>financial limit</b> <i>Scheme Policy</i>	A limit on the amount of benefits paid out for a particular covered expense as disclosed on the certificate of insurance.
<b>financial management</b> <i>Performance Management</i>	The process of managing a health insurance payer's financial resources including management decisions concerning accounting and financial reporting, forecasting, and budgeting.
<b>formal sector</b> <i>National Policy</i>	The part of the economy/society that is registered with authorities and that is subject to regulations and standards.
<b>fraud</b> <i>Performance Management</i>	A deception that could result in a payer unnecessarily paying for medical services. For example, if a provider files a claim for a service that was not provided.
<b>fully funded plan</b> <i>Scheme Policy</i>	A health plan under which an insurer or health insurance payer bears the financial responsibility of guaranteeing claim payments and paying for all incurred covered benefits and administration costs.
<b>gatekeeper</b> <i>Scheme Policy</i>	The person in a health insurance payer organization, often a primary care provider (PCP), who controls a patient's access to health care services and whose approval is required for referrals to other services or other specialists.

<b>general government expenditure on health</b> <i>National Policy</i>	The sum of outlays for health maintenance, restoration or enhancement paid for in cash or supplied in kind by government entities, such as the Ministry of Health, other ministries, parastatal organizations, social security agents, (without double-counting the government transfers to social security and extra-budgetary funds). Includes transfer payments to households to offset medical care costs and extra-budgetary funds to finance health services and goods. The revenue base of these entities may comprise multiple sources, including external funds.
<b>general practice</b> <i>Scheme Policy</i>	Physicians without specialty training who provide a wide range of primary health care services to patients.
<b>general practitioner</b> <i>Scheme Policy</i>	A family practitioner that provides medical care to people of all ages.
<b>generic drug</b> <i>Scheme Policy</i>	Once a company's patent on a brand-name prescription drug has expired, other drug companies are allowed to sell the same drug under a generic label. Generic drugs are less expensive. [8]  Antonym: <a href="#">brand-name drug</a>
<b>generic substitution</b> <i>Scheme Policy</i>	The dispensing of a drug that is the generic equivalent of a drug listed on a formulary of a pharmacy benefit management plan.
<b>governance</b> <i>National Policy</i>	The exercise of political, economic, and administrative authority in the management of a country's affairs at all levels. It is a neutral concept comprising the complex mechanisms, processes, relationships and institutions through which citizens and groups articulate their interests, exercise their rights and obligations, and mediate their differences.
<b>group health insurance</b> <i>Scheme Policy</i>	Coverage through an employer or other entity that covers all individuals in the group.
<b>guaranteed issue</b> <i>Scheme Policy</i>	The requirement that an insurance plan accept everyone who applies for coverage and guarantee the renewal of that coverage as long as the covered person pays the policy premium.
<b>health</b> <i>National Policy</i>	A state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. Health is a resource for everyday life, not the object of living. It is a positive concept emphasizing

social and personal resources as well as physical capabilities.

<b>health care costs</b> <i>National Policy</i>	The societal cost of providing services related to the delivery of health care.
<b>health care delivery</b> <i>National Policy</i>	One of the functions of the health system, which deals with the medical and therapeutic measures intended to preserve or improve the health condition of a patient.
<b>health equity</b> <i>National Policy</i>	Ensuring that the same quality of health is provided to all regardless of economic, social, cultural, geographical, or other differences; reducing gaps in health outcomes.
<b>health expenditures</b> <i>Performance Management</i>	The amounts spent by individuals, groups, nations, or private or public organizations for total healthcare and/or its various components. These amounts may or may not be equivalent to the actual costs (healthcare costs) and may or may not be shared among the patient, insurers, and/or employers.
<b>health gain</b> <i>Performance Management</i>	An increase in the measured health of an individual or population, including length and quality of life.
<b>health indicator</b> <i>Performance Management</i>	A measure that reflects, or indicates, the state of health of persons in a defined population (e.g., the infant mortality rate).
<b>health inequalities</b> <i>National Policy</i>	The gap in health status and in access to health services between different social classes and ethnic groups and between populations in different geographical areas.
<b>health insurance</b> <i>Scheme Policy</i>	Financial protection against the healthcare costs caused by treating disease or accidental injury.
<b>health insurance payer</b> <i>Scheme Policy</i>	Entity which collects, contracts for, and pays for health services from "providers."
<b>health maintenance organization (HMO)</b> <i>Scheme Policy</i>	A prepaid health plan delivering comprehensive care to members through designated providers, having a fixed monthly payment for health care services, and requiring members to be in a plan for a specified period of time.

<b>health management information system (HMIS)</b> <i>Factory</i>	The use of electronic information and communications technologies to provide and facilitate healthcare and health related services, improving healthcare processes.
<b>health outcome</b> <i>Performance Management</i>	The result of a healthcare intervention weighted by a value assigned to that result.
<b>health plan</b> <i>Scheme Policy</i>	A generic term to refer to a specific benefit package offered by an insurer.
<b>health planning</b> <i>Scheme Policy</i>	Planning for needed health and/or welfare services and facilities. [5]  Synonym: health service planning
<b>health policy</b> <i>National Policy</i>	A set of decisions or commitments to pursue courses of action aimed at achieving defined goals for improving health. A formal statement or procedure within institutions (notably government) which defines priorities and the parameters for action in response to health needs, available resources, and other political pressures. [1]  Synonym: policy, regulatory
<b>health promotion programs</b> <i>National Policy</i>	Preventive care programs designed to educate and motivate members to prevent illness and injury and to promote good health through lifestyle choices, such as smoking cessation and dietary changes. [3]  Synonym: wellness programs
<b>health risk assessment</b> <i>Scheme Policy</i>	A process by which a health insurance payer uses information about a plan member's health status, personal and family health history, and health-related behaviors to predict the member's likelihood of experiencing specific illnesses or injuries. [3]  Synonym: health risk appraisal
<b>health sector</b> <i>National Policy</i>	The health sector consists of organized public and private health services (including health promotion, disease prevention, diagnostic, treatment and care services), the policies and activities of health departments and ministries, health related nongovernment organizations and community groups, and professional associations.

<b>health service</b> <i>National Policy</i>	Any service which can contribute to improved health or the diagnosis, treatment, and rehabilitation of sick people and not necessarily limited to medical or healthcare services. Health services are often formally organized as a system of established institutions and organizations to supply services to respond to the needs and demands of the population within a defined financial and regulatory framework. Health services can include health education; health promotion; and environmental services such as housing, sanitation, etc., which have a known health benefit.
<b>health status</b> <i>Performance Management</i>	A general term for the state of health of an individual, group, or population at a particular point in time measured against defined standards.
<b>health system</b> <i>National Policy</i>	The people, institutions and resources arranged together in accordance with established policies to improve the health of the population they serve, while responding to people's legitimate expectations and protecting them against the cost of ill-health through a variety of activities whose primary intent is to improve health. Set of elements and their relations in a complex whole, designed to serve the health needs of the population. Health systems fulfill three main functions: healthcare delivery, fair treatment to all, and meeting non-health expectations of the population. These functions are performed in the pursuit of three goals: health, responsiveness and fair financing.
<b>healthcare</b> <i>National Policy</i>	The diagnosis, treatment and prevention of disease, illness, injury, and other physical and mental impairments in humans. Healthcare is delivered by practitioners in medicine, chiropractic, dentistry, nursing, pharmacy, allied health and other care providers.
<b>healthcare rationing</b> <i>National Policy</i>	Planning for the equitable allocation, apportionment, or distribution of available health resources.
<b>healthcare sector</b> <i>National Policy</i>	Economic sector concerned with the provision, distribution, and consumption of health care services and related products.
<b>healthy years equivalents (HYE)</b> <i>Performance Management</i>	The number of years of perfect health that are considered equivalent to (i.e., have the same utility as) the remaining years of life in their respective health states.
<b>high-cost case</b>	A patient whose condition requires large financial expenditures or

<i>Scheme Policy</i>	significant human and technological resources.
<b>high-risk case</b> <i>Scheme Policy</i>	A patient who has a complex or catastrophic illness or injury or who requires extensive medical interventions or treatment plans.
<b>home health care</b> <i>Scheme Policy</i>	Services given at home to aged, disabled, sick, or convalescent individuals not needing institutional care. The most common types of home care are visiting nurse services and speech, physical, occupational, and rehabilitation therapy. These services are provided by home health agencies, hospitals, or other community organizations.
<b>hospice care</b> <i>Scheme Policy</i>	Care for the terminally ill and their families in the home or a non-hospital setting that emphasizes alleviating pain rather than a medical cure.
<b>hospital</b> <i>Scheme Policy</i>	Any institution duly licensed, certified, and operated as a hospital. The term hospital does not include a convalescent facility, nursing home, or any institution or part thereof which is used principally as a convalescence facility, rest facility, nursing facility, or facility for the aged. An institution for the care and treatment of ill, injured, infirm, mentally abnormal, or deformed persons, with organized facilities for diagnosis and surgery and providing 24-hr nursing service and medical supervision.
<b>hospital costs</b> <i>Performance Management</i>	The expenses incurred by a hospital in providing care. The hospital costs attributed to a particular patient care episode include the direct costs plus an appropriate proportion of the overhead for administration, personnel, building maintenance, equipment, etc.
<b>hospitalist</b> <i>Scheme Policy</i>	Physician who spends a substantial amount of their time in a hospital setting where they accept admissions to their inpatient services from local primary care providers.
<b>human capital</b> <i>National Policy</i>	Human skills and capabilities generated by investments in education and health.
<b>identification card</b> <i>Scheme Policy</i>	A card given to each person covered under a health plan that identifies an insured as being eligible for benefits.
<b>illness</b> <i>Scheme Policy</i>	Any bodily disorder, bodily injury, disease, or mental health condition, including pregnancy and complications of pregnancy.

<b>immunization program</b> <i>Scheme Policy</i>	Preventive care program designed to monitor and promote the administration of vaccines to guard against childhood illnesses, such as chicken pox, mumps, and measles, and adult illnesses, such as pneumonia and influenza.
<b>inception date</b> <i>Scheme Policy</i>	Date that a health care insurance policy becomes effective.
<b>incidence</b> <i>Performance Management</i>	The number of cases of disease, infection, or some other event having their onset during a prescribed period of time in relation to the unit of population in which they occur. It usually refers only to the number of new cases, particularly of chronic diseases.
<b>indemnity health plan</b> <i>Scheme Policy</i>	With indemnity plans, the individual pays a predetermined percentage of the cost of health care services, and the health plan pays the other percentage. For example, an individual might pay 20% for services and the insurance company pays 80%. The fees for services are defined by the health care providers and vary from physician to physician and hospital to hospital.
<b>indicator</b> <i>Performance Management</i>	A measure of a specific component of a health improvement strategy. An indicator can reflect an activity implemented to address a particular health issue, such as the number of children aged 2 years who have received all appropriate immunizations, or it might reflect outcomes from activities already implemented, such as a decline in the number of cases of childhood measles in any given year.
<b>indigent care</b> <i>National Policy</i>	Care provided at no cost to people who do not have health insurance and are not covered by any public program.
<b>indirect patient expenditure</b> <i>Performance Management</i>	The items of expenditure that cannot be attributed to the care of individual patients such as lighting, heating, capital equipment, support staff, and services.
<b>individual health insurance</b> <i>Scheme Policy</i>	Health insurance coverage on an individual, not group, basis. The premium is usually higher for an individual health insurance plan than for a group policy, but the individual may not qualify for a group plan.
<b>inequality in health</b> <i>Performance Management</i>	Disparities in health across individuals in the population.

<b>informal sector</b> <i>National Policy</i>	The part of the society/economy that is not registered with authorities and, whether with legal exclusion or without it (de jure or de facto), is not subject to public regulation and does not benefit from public services or goods. For example, support given by a family, friends, and members of a community in times of loss or illness effectively forms an informal risk-protection mechanism. Despite the presumption that such care is voluntarily given, in some cases (for example, providing care to foster children), payment may in fact be given.
<b>information asymmetry</b> <i>Scheme Policy</i>	The difference in the amount of information available to the various parties to a transaction which does not place them on equal footing to negotiate. <a href="#">[1]</a>  Synonym: moral hazard
<b>information management</b> <i>Factory</i>	The combination of systems, processes, and technology that a health insurance payer uses to provide the company's information users with the information they need to carry out their job responsibilities.
<b>information system</b> <i>Factory</i>	An interactive combination of people, computer hardware and software, communications devices, and procedures designed to provide a continuous flow of information to the people who need information to make decisions or perform activities.
<b>information technology</b> <i>Factory</i>	The wide range of electronic devices and tools used to acquire, record, store, transfer or transform data or information.
<b>injury</b> <i>Scheme Policy</i>	Bodily damage sustained by accident.
<b>inpatient</b> <i>Scheme Policy</i>	A person who has been admitted to a hospital or other health facility for a period of at least 24 hours.
<b>inpatient care</b> <i>Scheme Policy</i>	Health care received while a patient stays overnight in a hospital.
<b>insurability</b> <i>Scheme Policy</i>	A risk is insurable if it is random, and there is a party willing to accept the risk for an agreed premium and another party is prepared to pay that premium (this means it is solvable). This situation implies that the probability is known, it is free of moral hazard and adverse selection

problems, that it is a legal proposition, and that the premium is affordable. Practical problems associated with information availability may render otherwise insurable risks uninsurable.

<b>insurance company</b> <i>Scheme Policy</i>	A corporation, association, or fraternal benefit society engaged primarily in the business of furnishing insurance protection to the public. Accepts various perils, hazards, and risks of an insured in return for premium payments, and in return, promises to indemnify for losses, provide other pecuniary benefits, or render a service.
<b>insurance policy</b> <i>Scheme Policy</i>	The insurance agreement or contract.
<b>insurance policy holder</b> <i>Scheme Policy</i>	The insured person named on the insurance policy.
<b>insurance policy year</b> <i>Scheme Policy</i>	The 12-month period beginning with the effective date or renewal date of the policy.
<b>insurance program</b> <i>Scheme Policy</i>	A unified life or health insurance plan that coordinates the needs, policies, and settlement options available to carry out the aims and objectives of a client.
<b>insurance threshold</b> <i>Scheme Policy</i>	Insurers typically request that the insured pay the first part of any claim. This cost sharing is a form of deductible, used to simplify administration by reducing the number of small claims.
<b>insured</b> <i>Scheme Policy</i>	The party or plan member to an insurance contract, covering health or other insurance, to whom, or on behalf of whom, the insurer agrees to indemnify for losses, provide benefits, or render services. The individual or group covered by the contract of insurance.
<b>insurer</b> <i>Scheme Policy</i>	The company underwriting the insurance and assuming the risk. The party to an insurance contract that undertakes to indemnify for losses, provide other pecuniary benefits, or render services.
<b>integrated delivery system (IDS)</b> <i>Scheme Policy</i>	A network of hospitals, physicians, and other medical services, along with an HMO or insurance plan, formed to cost-effectively provide a population with a full continuum of care (i.e., from prevention through check-ups, tests, surgery, rehabilitation, long-term, and home care) that is

accountable for costs, quality of care, and customer satisfaction.

<b>integrated provider (IP)</b> <i>Scheme Policy</i>	A group of providers that offer comprehensive and coordinated care and usually provides a range of medical care facilities and service plans including hospitals, group practices, a health plan and other related health care services.
<b>intensive care</b> <i>Scheme Policy</i>	Medical care for complex illness and to patients who are unable to maintain vital functions.
<b>international classification of primary care (ICPC)</b> <i>Factory</i>	A classification method for primary care encounters which allows for the classification of the patient's reason for encounter (RFE), the problems/diagnosis managed, primary care interventions, and the ordering of the data of the primary care session in an episode of care structure. It is being developed by the International Classification Committee (WICC). ICPC was first published in 1987 by Oxford University Press (ICPC-1) and a revision and inclusion of criteria and definitions was published in 1998 (ICPC-2).
<b>international statistical classification of diseases and related health problems (ICD)</b> <i>Factory</i>	A coding of diseases, signs and symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or diseases as classified by the World Health Organization.
<b>key performance indicator (KPI)</b> <i>Performance Management</i>	<p>A key performance indicator is a measure of performance. KPIs are commonly used by an organization to evaluate its success or the success of a particular or activity in which it is engaged. KPIs are ways to periodically assess the performances of organizations, business units, and their division, departments and employees. Accordingly, KPIs are most commonly defined in a way that is understandable, meaningful, and measurable. KPI, in practical terms and for strategic development, are objectives to be targeted that will add the most value to the business. [4]</p> <p>Synonym: key success indicator, performance indicator</p>
<b>lapse</b> <i>Scheme Policy</i>	Termination of insurance for non-payment of premium.
<b>length of stay (LOS)</b> <i>Scheme Policy</i>	The amount of time an individual stays in a hospital or inpatient facility.

<b>length of stay guidelines</b> <i>Scheme Policy</i>	A utilization review resource that establishes an average inpatient length of stay based on a patient's diagnosis, the severity of the patient's condition, and the type of services and procedures prescribed for the patient's care.
<b>licensure</b> <i>National Policy</i>	The granting of a license, which gives "permission to practice". In general, licenses are used to regulate activities that are deemed to be dangerous or a threat to the person or the public or which involve a high level of specialized skill.
<b>life expectancy</b> <i>Performance Management</i>	The number of years of life that can be expected on average in a given population.
<b>lifetime maximum payments</b> <i>Scheme Policy</i>	A cap on the benefits paid for the duration of a health insurance policy. When a policy has a lifetime limit of X, the insurer agrees to cover up to amount X in covered services over the life of the policy. Once the maximum amount X is reached, no additional benefits are payable.
<b>limitations</b> <i>Scheme Policy</i>	A limit on the amount of services that may be provided. It may be the maximum cost or number of days that a service or treatment is covered.
<b>limited policy</b> <i>Scheme Policy</i>	A policy that covers only specified accidents or sicknesses.
<b>limited service hospital</b> <i>Scheme Policy</i>	A hospital, often located in a rural area, which provides a limited set of medical and surgical services.
<b>line item</b> <i>Factory</i>	Service or item-specific detail of claim.
<b>linkage</b> <i>National Policy</i>	Degree of vertical and horizontal fragmentation or integration in the healthcare system.
<b>load</b> <i>Performance Management</i>	The cost of insurance (administration, finance, and so on) as distinct from payouts (benefits). Efficient companies have a low load relative to benefits.
<b>long-term care</b> <i>Scheme Policy</i>	Health care, personal care, and social services provided to people who have a chronic illness or disability and do not have full functional capacity. This care can take place in an institution or at home, on a long-

term basis.

<b>loss ratio</b> <i>Performance Management</i>	The ratio of incurred claims to collected premium.
<b>managed care</b> <i>Performance Management</i>	The integration of both the financing and delivery of health care within a system that seeks to manage the accessibility, cost, and quality of that care.
<b>managed care organization (MCO)</b> <i>Performance Management</i>	Any entity that utilizes certain concepts or techniques to manage the accessibility, cost, and quality of healthcare.
<b>manual rating</b> <i>Scheme Policy</i>	A rating method under which a health plan uses the plan's average experience with all groups—and sometimes the experience of other health plans—rather than a particular group's experience to calculate the group's premium. A health insurance payer often lists manual rates in an underwriting or rating manual.
<b>marketing</b> <i>Scheme Policy</i>	The process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives.
<b>master policy</b> <i>Scheme Policy</i>	The group insurance policy that explains coverage to all members of the group.
<b>medical error</b> <i>Performance Management</i>	A mistake that occurs when a planned treatment or procedure is delivered incorrectly or when a wrong treatment or procedure is delivered.
<b>medical ethics</b> <i>Scheme Policy</i>	The principles and values that guide the actions of an individual or population when faced with questions of right and wrong.
<b>medical loss ratio</b> <i>Performance Management</i>	The relationship of medical insurance premiums paid out for claims.
<b>medical necessity</b> <i>Scheme Policy</i>	Medical information justifying that the service rendered or item provided is reasonable and appropriate for the diagnosis or treatment of a medical condition or illness.

<b>medically necessary</b> <i>Scheme Policy</i>	Many insurance policies will pay only for treatment that is deemed "medically necessary" to restore a person's health. For instance, many health insurance policies will not cover routine physical exams or plastic surgery for cosmetic purposes.
<b>member</b> <i>Scheme Policy</i>	This term is a close synonym of insured, however it usually connotes benefits in a particular form of insurance scheme. This word became popular with the HMO (Health Maintenance Organization) movement in the USA and is now used in other countries to represent membership in an integrated health services delivery scheme. An example is when a payer has its own health care delivery system.
<b>member services</b> <i>Scheme Policy</i>	The broad range of activities that a health insurance payer and its employees undertake to support the delivery of the promised benefits to members and to keep members satisfied with the company.
<b>microinsurance</b> <i>Scheme Policy</i>	A mechanism for pooling a whole community's risks and resources to protect all its participating members against the financial consequences of mutually determined health risks.
<b>morbidity</b> <i>Performance Management</i>	A measure of disease incidence or prevalence in a given population, location, or other grouping of interest.
<b>morbidity rate</b> <i>Performance Management</i>	The ratio of the incidence of sickness to the number of well persons in a given group of people over a given period of time.
<b>mortality</b> <i>Performance Management</i>	A measure of deaths in a given population, location, or other grouping of interest.
<b>mortality rate</b> <i>Performance Management</i>	The ratio of the number of deaths in a given group in a year's time to the total number in the group exposed to the risk of death.
<b>national health accounts</b> <i>National Policy</i>	Information, usually in the form of indicators, a country may collect on its health expenditures. Indicators may include total health expenditure, public expenditure, private expenditure, out-of-pocket expenditure, tax-funded and other public expenditure, social security expenditure, or public expenditure on health.
<b>national health expenditures</b>	Total spending on health services, prescription, and over-the-counter drugs and products, nursing home care, insurance costs, public health

<i>National Policy</i>	spending, and health research and construction.
<b>network</b> <i>Scheme Policy</i>	A group of doctors, hospitals, and other health care providers contracted to provide services to insurance companies' customers for less than their usual fees. Provider networks can cover a large geographic market or a wide range of health care services. Insured individuals typically pay less for using a network provider.
<b>network provider</b> <i>Scheme Policy</i>	Providers or health care facilities that are part of a health plan's network of providers with which it has negotiated a discount. Insured individuals usually pay less when using an in-network provider because those networks provide services at a lower cost to the insurance companies with which they have contracts.
<b>non-participating provider</b> <i>Scheme Policy</i>	A health care provider who is not part of a health plan. Usually patients must pay their own health care costs to see a non-participating provider.
<b>nurse practitioner</b> <i>Scheme Policy</i>	A nurse specialist who provides primary and/or specialty care to patients.
<b>nursery</b> <i>Scheme Policy</i>	A hospital perinatal unit for normal newborns that includes incubators for nondistressed, low-birth-weight babies.
<b>nursing home</b> <i>Scheme Policy</i>	A residence facility that provides room, board, and help in the activities of daily living.
<b>occupational health</b> <i>Scheme Policy</i>	Activities undertaken to protect and promote the health and safety of employees in the workplace, including minimizing exposure to hazardous substances, evaluating work practices, and environments to reduce injury, and reducing or eliminating other health threats.
<b>occurrence</b> <i>Scheme Policy</i>	An accident or sickness that results in an insured loss.
<b>open access</b> <i>Scheme Policy</i>	A provision that specifies that plan members may self-refer to a specialist, either in the network or out of the network, at full benefit or at a reduced benefit without first obtaining a referral from a primary care provider.
<b>open formulary</b> <i>Scheme Policy</i>	The provision that drugs on the preferred list and those not on the

preferred list will both be covered.

<b>open panel</b> <i>Scheme Policy</i>	The covered person is allowed to get non-emergency covered services from a specialist without getting a referral from the primary care physician or gatekeeper.
<b>outcomes measures</b> <i>Performance Management</i>	Health care quality indicators that gauge the extent to which health care services succeed in improving or maintaining satisfaction and patient health.
<b>out-of-network provider</b> <i>Scheme Policy</i>	A provider which has not been contracted with the insurance company for reimbursement at a negotiated rate.
<b>out-of-pocket (OOP) payment</b> <i>Performance Management</i>	Fee paid by the consumer of health services directly to the provider at the time of delivery.
<b>outpatient</b> <i>Scheme Policy</i>	An individual (patient) who receives health care services on an outpatient basis, meaning they do not stay overnight in a hospital or inpatient facility.
<b>outpatient care</b> <i>Scheme Policy</i>	Treatment that is provided to a patient who is able to return home after care without an overnight stay in a hospital or other inpatient facility.
<b>package</b> <i>Scheme Policy</i>	A combination of several different types of health insurance coverage.
<b>participating provider</b> <i>Scheme Policy</i>	A participating provider is a provider who has a contract with the insurance scheme and who agrees to accept payment from that scheme as payment in full, except for any co-payments or deductibles which are due as part of the benefit plan.
<b>patient</b> <i>Scheme Policy</i>	A person in contact with the health system seeking attention for a health condition.
<b>patient-centered health care</b> <i>Scheme Policy</i>	Providing health care that is respectful of and responsive to individual patient preferences, needs and values and ensuring that patient values guide all clinical decisions.
<b>payer</b>	An entity that assumes the risk of paying for medical treatments. This can

<i>Scheme Policy</i>	be an uninsured patient, a self-insured employer, a health plan, or a HMO.
<b>per-diem payments</b> <i>Scheme Policy</i>	For hospital stays, some insurance schemes provide for per-diem ("per-day") payments of fixed amounts according to the particular category of the patient. Thus sicker patients (higher "acuity") generally result in higher per-diem payments, and patients who require less nursing care and other services in lower payments.
<b>performance</b> <i>Performance Management</i>	The extent to which the health system is meeting a set of key objectives.
<b>performance measure</b> <i>Performance Management</i>	A quantitative measure of the quality of care provided by a health plan or provider that consumers, payers, regulators, and others can use to compare the plan or provider to other plans or providers.
<b>personal health care expenditures</b> <i>National Policy</i>	Outlays for goods and services relating directly to patient care. The part of total national or state health expenditures spent on direct health care delivery, including hospital care, physician services, dental services, home health, nursing home care, and prescription drugs.
<b>point-of-service (POS) plan</b> <i>Scheme Policy</i>	A plan that contains elements of both HMOs and PPOs. They resemble HMOs for in-network services in that they both require co-payments and a primary care physician. Services received outside of the network are usually reimbursed on a fee for service basis.
<b>portability</b> <i>Scheme Policy</i>	The ability for an individual to transfer from one health insurer to another health insurer with regard to preexisting conditions or other risk factors.
<b>preadmission review</b> <i>Scheme Policy</i>	A review of an individual's health care status or condition prior to an individual being admitted to a hospital or inpatient health care facility.
<b>pre-authorization</b> <i>Scheme Policy</i>	A requirement that the physician obtains approval from the health plan prior to hospitalization or surgery or to prescribe a specific medication. Without this prior approval, the health plan may not provide coverage.
<b>preexisting medical condition</b> <i>Scheme Policy</i>	A medical condition that is excluded from coverage by an insurance company because the condition was believed to exist prior to the individual obtaining a policy from the particular insurance company. [8]

Synonym: comorbid condition

**preferred provider  
organization (PPO)**  
*Scheme Policy*

A network of health care providers with which a health insurer has negotiated contracts for its insured population to receive health services at discounted costs. Health care decisions generally remain with the patient as he or she selects providers and determines his or her own need for services. Patients have financial incentives to select providers within the preferred provider organization network.

**premium**  
*Scheme Policy*

The amount paid to an insurance company or health plan in exchange for health insurance coverage, including paying for health-related services such as doctor visits, hospitalizations, and medications. [10]

Synonym: (health) insurance premium

**prescription**  
*Performance Management*

A written authorization for a prescription medication given by a participating physician prescriber. [7]

Synonym: Rx

**prevalence**  
*Performance Management*

The number of cases of disease, infected persons, or persons with some other attribute, present at a particular time and in relation to the size of the population from which drawn. [7]

Related term: [incidence](#)

**prevalence rate**  
*Performance Management*

The proportion of persons in a population who have a particular disease or attribute at a specified point in time or over a specified period of time.

**preventive care**  
*Scheme Policy*

An approach to health care which emphasizes preventive measures and health screenings such as routine physicals, well-baby care, immunizations, diagnostic lab and x-ray tests, pap smears, mammograms, and other early detection testing. The purpose of offering coverage for preventive care is to diagnose a problem early, when it is less costly to treat rather than late in the stage of a disease when it is much more expensive or too late to treat.

**primary care**  
*Scheme Policy*

A basic level of health care provided by the physician from whom an individual has an ongoing relationship and who knows the patient's

medical history. Primary care services emphasize a patient's general health needs, such as preventive services, treatment of minor illnesses and injuries, or identification of problems that require referral to specialists.

**primary care physician (PCP)**  
*Scheme Policy*

A physician who serves as a group member's personal doctor and first contact in a managed care system. [7]

Synonym: primary care provider

**primary health care (PHC)**  
*Scheme Policy*

General medical care that is provided directly to a patient without referral from another physician. It is focused on preventive care and the treatment of routine injuries and illnesses.

**private expenditure on health**  
*National Policy*

The sum of outlays for health by private entities, such as commercial or mutual health insurance, nonprofit institutions serving households, resident corporations or quasi-corporations not controlled by government with a health services delivery or financing, and households.

**proof of coverage**  
*Scheme Policy*

A document given to an insured that describes the benefits, limitations, and exclusions of coverage provided by an insurance company. [2]

Synonym: certificate of coverage, certificate of insurance

**provider**  
*Scheme Policy*

A provider includes all caregivers and any others who have the right to claim payments under the insurance scheme. Most typically a provider is a professional person (physician, nurse, dentist, therapist) or a facility (hospital, clinic, home health agency) including suppliers of therapeutics (medications from a pharmacy, medical supplies from a store, orthopedic supplies, etc. [15])

Synonym: health care provider

**provider agreement**  
*Scheme Policy*

Physician contract with a health insurance company, producing rules and billing regulations.

**provider identifier**  
*Factory*

Computer numeric identifier given to a health care entity or provider for tracking and payment purposes.

**provider manual**  
*Scheme Policy*

A document that contains information concerning a provider's rights and

responsibilities as part of a network.

<b>provider profiling</b> <i>Scheme Policy</i>	The collection and analysis of information about the practice patterns of individual providers.
<b>public health</b> <i>National Policy</i>	Activities that society undertakes to ensure the conditions in which people can be healthy. These include organized community efforts to prevent, identify, and counter threats to the health of the public.
<b>qualifying conditions</b> <i>Scheme Policy</i>	Requirements for acceptance into an insurance plan; also describes the provisions that must be met before a benefit is payable.
<b>quality assessment</b> <i>Performance Management</i>	Measurement of the quality of care.
<b>quality assurance</b> <i>Scheme Policy</i>	Activities and programs intended to assure the quality of care in a defined medical setting.
<b>quality assurance and quality improvement</b> <i>Performance Management</i>	A systematic process to improve quality of health care by monitoring quality, finding out what is not working, and fixing the problems of health care delivery.
<b>quality management</b> <i>Performance Management</i>	An organization-wide process of measuring and improving the quality of the health care provided by a health insurance payer.
<b>quality of care</b> <i>Performance Management</i>	How well health services result in desired health outcomes.
<b>quality of life</b> <i>Performance Management</i>	Quality of life is defined as an individual's perceptions of their position in life in the context of the culture and value system where they live and in relation to their goals, expectations, standards, and concerns. It is a broad-ranging concept, incorporating in a complex way a person's physical health, psychological state, level of independence, social relationships, personal beliefs, and relationship to salient features of the environment.
<b>quality-adjusted life year (QALY)</b> <i>Performance Management</i>	A measure of health improvement, measuring life expectancy adjusted for quality of life. <a href="#">[5]</a>

Related to: [disability-adjusted life years \(DALYS\)](#)

**rate spread**  
*Scheme Policy* The difference between the highest and lowest rates that a health plan charges to small groups.

**rating**  
*Scheme Policy* The process of calculating the appropriate premium to charge purchasers given the degree of risk represented by the individual or group, the expected costs to deliver medical services, and the expected marketability and competitiveness of the health insurance payer's plan. [3]

Synonym: setting premiums

**re-admission rate**  
*Performance Management* Represents the rate at which patients return to the hospital within 30 days of discharge following an inpatient stay for a surgical procedure.

**reconciliation**  
*Performance Management* A method of applying premiums, dues, or bills to health insurance policies.

**referral**  
*Scheme Policy* A special kind of preapproval that health plan members must obtain from their primary care physician before seeing a specialist.

**referral system**  
*Scheme Policy* The process through which a primary care provider authorizes a patient to see a specialist to receive additional care.

**reimbursement**  
*Scheme Policy* The amount paid to providers for services they provide to patients.

**reinsurance**  
*Scheme Policy* The transfer of liability from the primary insurer, the company that issued the contract, to another insurer, the reinsurance company.

**reinsurance policy**  
*Scheme Policy* The amount charged by the reinsurer to accept an agreed amount of risk.

**resource allocation and planning (RAP)**  
*National Policy* A way to allow market forces to work by fostering competitive negotiations between the purchasers of services ("payers") and the providers of services ("providers"). Resource allocation and planning is characterized by a strong separation of duties, responsibilities, and accountabilities between "payer" and "provider" functions and responsibilities.

- risk**  
*Scheme Policy* The responsibility for profiting or losing money based on the cost of health care services provided. Traditionally, health insurance companies have carried the risk. Under capitation, health care providers bear risk.
- risk adjustment**  
*Scheme Policy* The statistical adjustment of outcomes measures to account for risk factors that are independent of the quality of care provided and beyond the control of the plan or provider, such as the patient's gender and age, the seriousness of the patient's condition, and any other illnesses the patient might have. Also known as case-mix adjustment.
- risk factor**  
*Scheme Policy* An attribute (for example, a lifestyle factor such as smoking or a personal characteristic such as age) or an exposure to an environmental factor associated with an increase in the probability that a specified health event (for example, onset of disease) will occur.
- risk pooling**  
*Scheme Policy* The practice of bringing several risks together for insurance purposes in order to balance the consequences of the realization of each individual risk.
- risk rating**  
*Scheme Policy* Technique for adjusting insurance premiums according to the relative risk insured.
- risk segregation**  
*Scheme Policy* Each individual faces his or her own risks without pooling.
- risk selection**  
*Scheme Policy* The practice of singling out or disaggregating a particular risk from a pool of insured risks.
- roster**  
*Scheme Policy* A roster is a list of patients who are entrusted to a particular primary care physician (PCP). The roster contains the patients name, dob, sex, and possibly some other demographic information about that patient. A roster can be used to calculate capitation payments to a provider. [\[15\]](#)
- Synonym: provider capitation list
- roster cap**  
*Scheme Policy* There is a maximum number of patients allowed on any one's roster. This avoids the problem of having physicians sign up Insureds to their roster when they are unable to provide adequate services to the roster.

<b>safe health care</b> <i>Performance Management</i>	Avoiding injuries to patients from the care that is intended to help them.
<b>schedule of benefits and exclusions</b> <i>Scheme Policy</i>	A health insurance listing of the benefits which are covered under the policy guidelines as well as services which are not provided under the policy.
<b>secondary health care</b> <i>Scheme Policy</i>	Hospitals and outpatient specialist clinics to which people go after referral from primary health care services. These services are generally more specialized and further from where people live. They often include a greater range of diagnostic services such as X-ray and pathological laboratory services; they may also include specialized treatment such as surgery, radiotherapy, and certain drug therapies not normally available in primary care. The principal difference between primary and secondary services is in the range and specialization of the staff available.
<b>service</b> <i>Scheme Policy</i>	Medical care and items, such as medical diagnosis and treatment; drugs and biologicals; supplies, appliances, and equipment; medical social services; and use of hospital, rural primary care hospital, or skilled-nursing facilities.
<b>service-level agreement</b> <i>Factory</i>	The agreements that are fundamental to both providers and payers. They define the terms of engagement and rules that govern the relationship.
<b>sickness fund</b> <i>National Policy</i>	A third-party payer in a social health insurance system covering the community as a whole or sections of the population. Sickness funds are usually quasi-public bodies. Synonyms are "sick funds" and "health insurance funds."
<b>social insurance</b> <i>Scheme Policy</i>	Compulsory plan under which participants are entitled to certain benefits as a matter of right. The plan is administered by a state or federal government agency aimed at providing a minimum standard of living for lower and middle wage groups. Social Security, unemployment compensation, etc., are social insurance programs.
<b>specialist</b> <i>Scheme Policy</i>	Any health professional who has specific training and certification in a particular area of medical care.
<b>standard benefit package</b> <i>Scheme Policy</i>	A defined set of benefits provided to all people covered under a health plan.

<b>standard of care</b> <i>Scheme Policy</i>	A clinical protocol that is agreed upon by the involved professional community.
<b>subsidy</b> <i>Scheme Policy</i>	A payment made by the government with the object of reducing the market price of a particular product or of maintaining the income of the producer.
<b>survey</b> <i>Performance Management</i>	Systematic collection of information from a defined population, usually by means of interviews or questionnaires administered to a sample of units in the population.
<b>target population</b> <i>Scheme Policy</i>	Cohort based on age, gender, clinical focus, and target geographic areas. <a href="#">[7]</a>  Synonym: target group
<b>tertiary health care</b> <i>Scheme Policy</i>	Specialized care that offers a service to those referred from secondary care for diagnosis or treatment and which is not available in primary or secondary care. This kind of care is generally only available at national or international referral centres. Tertiary care has become a common feature in certain specialties for rare conditions, or where the diagnostic or treatment facilities are scarce or require scarce combinations of resources, or which remain essentially the subject of research. These facilities are commonly found in medical schools and teaching hospitals.
<b>third-party administrator (TPA)</b> <i>Scheme Policy</i>	An organization that processes health plan claims but does not carry any insurance risk.
<b>third-party payer</b> <i>Scheme Policy</i>	An organization other than the patient or health care provider involved in the financing of personal health services.
<b>timeliness</b> <i>Performance Management</i>	Reducing waits and sometimes harmful delays for both those who receive and those who give care.
<b>total expenditure on health</b> <i>National Policy</i>	Funds mobilised by the system. Sum of general government and private expenditure on health
<b>transaction costs</b> <i>Scheme Policy</i>	The costs additional to the price of a good or service, arising, for example, from search costs, travel costs, marketing and distribution, or

transfer of ownership costs.

<b>treatment</b> <i>Scheme Policy</i>	Patient care intended to correct or relieve the underlying problem and its symptoms.
<b>uncompensated care</b> <i>National Policy</i>	Health care provided to people who cannot pay for it and who are not covered by any insurance. This includes both charity care which is not billed and the cost of services that were billed but never paid.
<b>under-5 mortality rate</b> <i>Performance Management</i>	The mortality rate of children between birth and five years.
<b>underinsured</b> <i>Scheme Policy</i>	People who have some type of health insurance but not enough insurance to cover their the cost of necessary health care. This includes people who have very high deductibles or insurance policies that have specific exclusions for costly services.
<b>underwriter</b> <i>Scheme Policy</i>	The company that assumes responsibility for the risk, issues insurance policies, and receives premiums.
<b>underwriting</b> <i>Scheme Policy</i>	The act of reviewing and evaluating prospective insured persons for risk assessment and appropriate premium.
<b>underwriting impairments</b> <i>Scheme Policy</i>	Factors that tend to increase an individual's risk above that which is normal for his or her age.
<b>uninsured</b> <i>Scheme Policy</i>	People who do not have any health insurance of any type.
<b>unique identifier (UID)</b> <i>Factory</i>	With reference to a given set of objects, a unique identifier (UID) is any identifier which is guaranteed to be unique among all identifiers used for those objects and for a specific purpose. There are three main types of unique identifiers: serial numbers, random numbers, and names or codes allocated by choice which are forced to be unique by keeping a central registry.
<b>universal coverage</b> <i>National Policy</i>	The proposal that all members of a country (or a community) have access to health insurance that will cover some aspects of care.
<b>upcoding</b>	A coding inconsistency that involves using a code for a procedure or

<i>Performance Management</i>	diagnosis that is more complex than the actual procedure or diagnosis and that results in higher reimbursement to the provider.
<b>urgent care</b> <i>Scheme Policy</i>	Health care provided in situations of medical duress that have not reached the level of emergency. Claim costs for urgent care services are typically much less than for services delivered in emergency rooms. [2]  Synonym: immediate care
<b>user fees</b> <i>Scheme Policy</i>	Charges payable by users, usually at the point of service.
<b>utilization</b> <i>Performance Management</i>	How many times people use particular health care services during particular periods of time.
<b>utilization guidelines</b> <i>Scheme Policy</i>	A utilization review resource that indicates accepted approaches to care for common, uncomplicated health care services.
<b>utilization review</b> <i>Performance Management</i>	An evaluation of the medical necessity, appropriateness, and cost-effectiveness of healthcare services and treatment plans for a given patient. [3]  Synonym: utilization management
<b>voluntary care</b> <i>Scheme Policy</i>	Care, usually by a family member. The market price is zero, but there is an opportunity cost in terms of the alternative ways in which the carer could have utilized the time. A value would have to be imputed, perhaps based on the salary of a paid caregiver.
<b>waiting period</b> <i>Scheme Policy</i>	A period of time when the health plan does not cover a person for a particular health problem.
<b>willingness to pay</b> <i>Scheme Policy</i>	How much a person or group is prepared to pay for particular goods or services.
<b>withhold</b> <i>Scheme Policy</i>	A percentage of providers' fees that managed care companies hold back from providers which is only given to them if the amount of care they provide (or that the entire plan provides) is under a budgeted amount for each quarter or the whole year.

**yearly maximum payments** The maximum amount which an insurance scheme must pay for an  
*Scheme Policy* insured during any one year period.

## Appendix C: Task flow diagrams

A task flow diagram is a graphical model that illustrates the activities of a business process as well as who performs those activities, known as the functional role. The task flow provides a “story” for the business process being diagrammed and can help inform the writing of use cases as another method for documenting user requirements. Another important function of the task flow diagram is to serve as a focal point for achieving clarity and agreement among core work group members and stakeholders. They also serve the critical role in bridging to more technical representations of work flow and data flow. This next level of technical elaboration created by software and system engineers often involves UML (Unified Modeling Language), technical use cases, and data entity diagrams.<sup>10</sup>

This appendix contains both the common task flow diagrams that were developed by the core work group as well as the draft diagrams developed for Thailand NHSO, India RSBY and India Aarogyasri. Please note that these country specific diagrams were developed so that we could compare the systems in a similar way and understand common elements. Since these are extrapolated from more robust country documentation, the reader is encouraged to access (same links as in section that discusses this) for the key specifics per country.

---

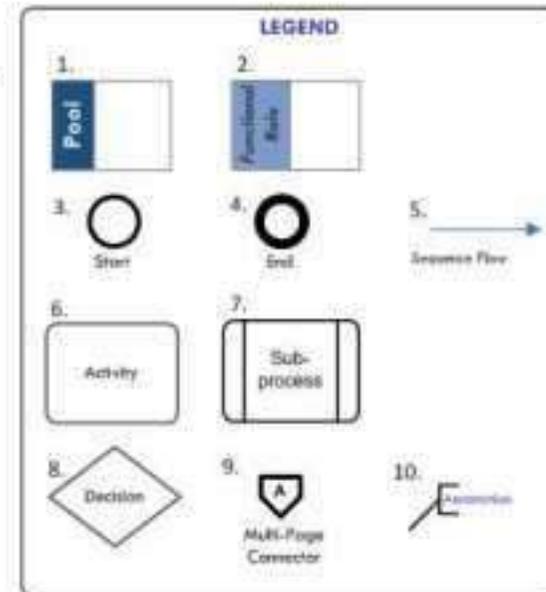
<sup>10</sup>Larman C. *Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development. Third Edition.* Upper Saddle River, NJ: Prentice Hall PTR/ Upper Saddle River, NJ: Prentice Hall PTR. 2005.

## Diagram Descriptions

### Task Flow Diagrams

A task flow diagram is a graphical model that illustrates the activities of a business process, as well as who performs those activities, known as functional groups. The task flow provides a "story" for the business process being diagrammed. The components of the task flow diagram are defined as listed below:

1. **Pools**—a group, department, organization or unit that contains multiple functional swim lanes (functional groups).
2. **Swim Lanes**—a functional individual or group. These are entities that perform or are accountable for designated activities in the process.
3. **Start Event**—a process mapping shape used to define the "start" of the process.
4. **End Event**—a process mapping shape used to define the "end" of the process.
5. **Sequence Flow**—shows the logical flow and direction of information and activities.
6. **Activity**—an action performed by the functional individual or group.
7. **Subprocess**—a shape used as a call out to another process.
8. **Decision**—a required conclusion needed in the process. These are typically approvals or resolutions.
9. **Multi-Page Connector**—links to the next page when a process is too large to fit on one page.
10. **Annotation**—a text description to add clarity or context to any point of the process.

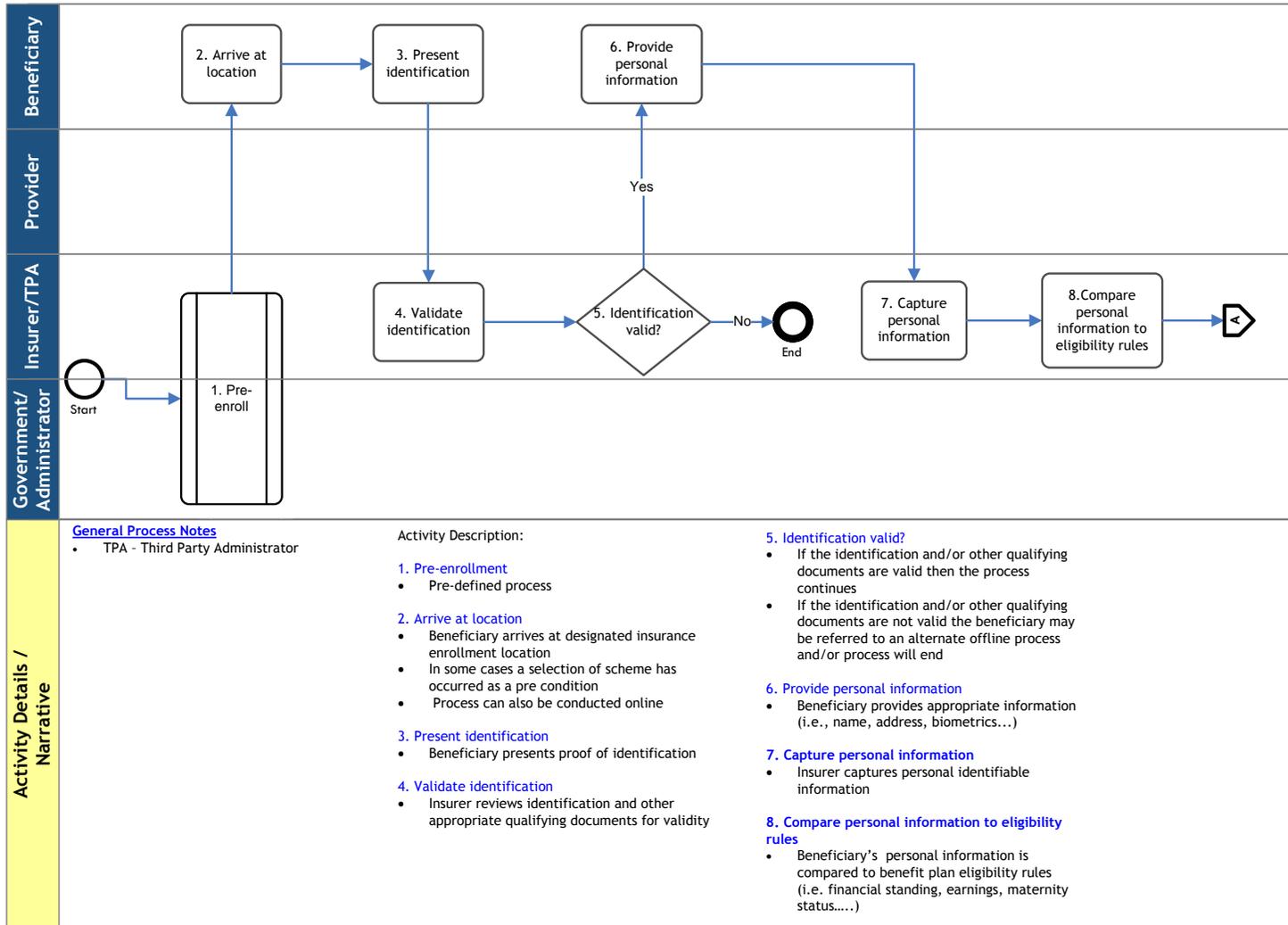


# Determining Common Requirements for National Health Insurance Information Systems

## Enrollment - Common

National Health Insurance  
Information System Requirements

1 of 2



DRAFT Version 11/3/11

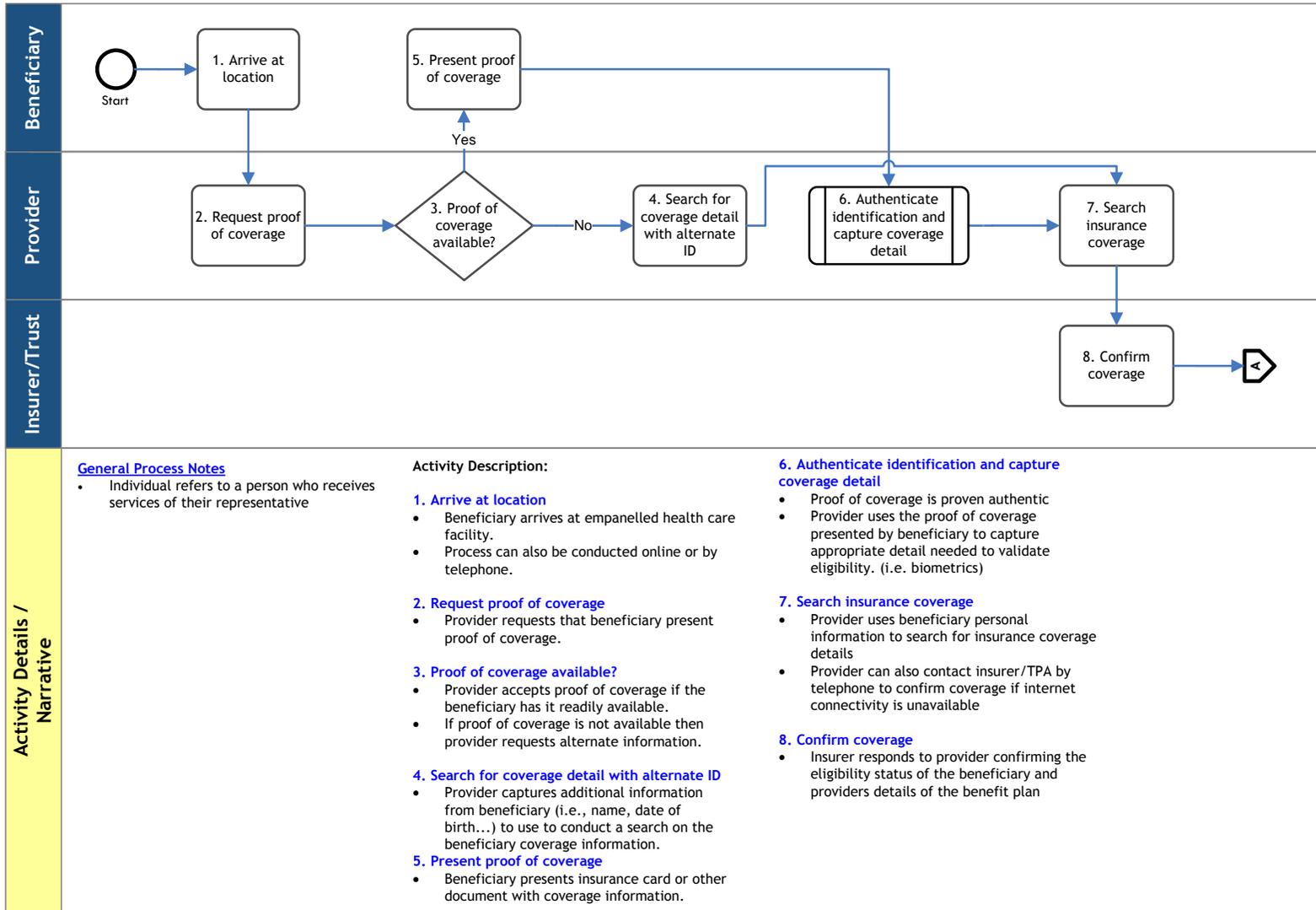
**Enrollment - Common**

2 of 2

Beneficiary	
Provider	
Insurer/TPA	<pre> graph LR     Start((A)) --&gt; Eligible{9. Eligible?}     Eligible -- Yes --&gt; Assign[10. Assign benefit plan]     Assign --&gt; Authorize[11. Authorize enrollment]     Authorize --&gt; Proof[12. Provide proof of coverage]     Proof --&gt; End1((End))     Eligible -- No --&gt; End2((End))     </pre>
Government/ Administrator	
Activity Details / Narrative	<p><u>General Process Notes</u></p> <ul style="list-style-type: none"> <li>TPA - Third Party Administrator</li> </ul> <p><b>9. Eligible?</b></p> <ul style="list-style-type: none"> <li>If the beneficiary is determined to be eligible for a benefit plan then the process continues</li> <li>If the beneficiary is determined that they are not eligible then the process ends</li> </ul> <p><b>10. Assign benefit plan</b></p> <ul style="list-style-type: none"> <li>Insurer assigns a benefits plan to the beneficiary once eligibility has been determined</li> </ul> <p><b>11. Authorize enrollment</b></p> <ul style="list-style-type: none"> <li>Insurer and/ or other authority completes final review of beneficiary information and authorizes enrollment.</li> </ul> <p><b>12. Provide proof of coverage</b></p> <ul style="list-style-type: none"> <li>Insurer provides proof of coverage to the beneficiary (i.e., printout of plan details, insurance card,...)</li> </ul>

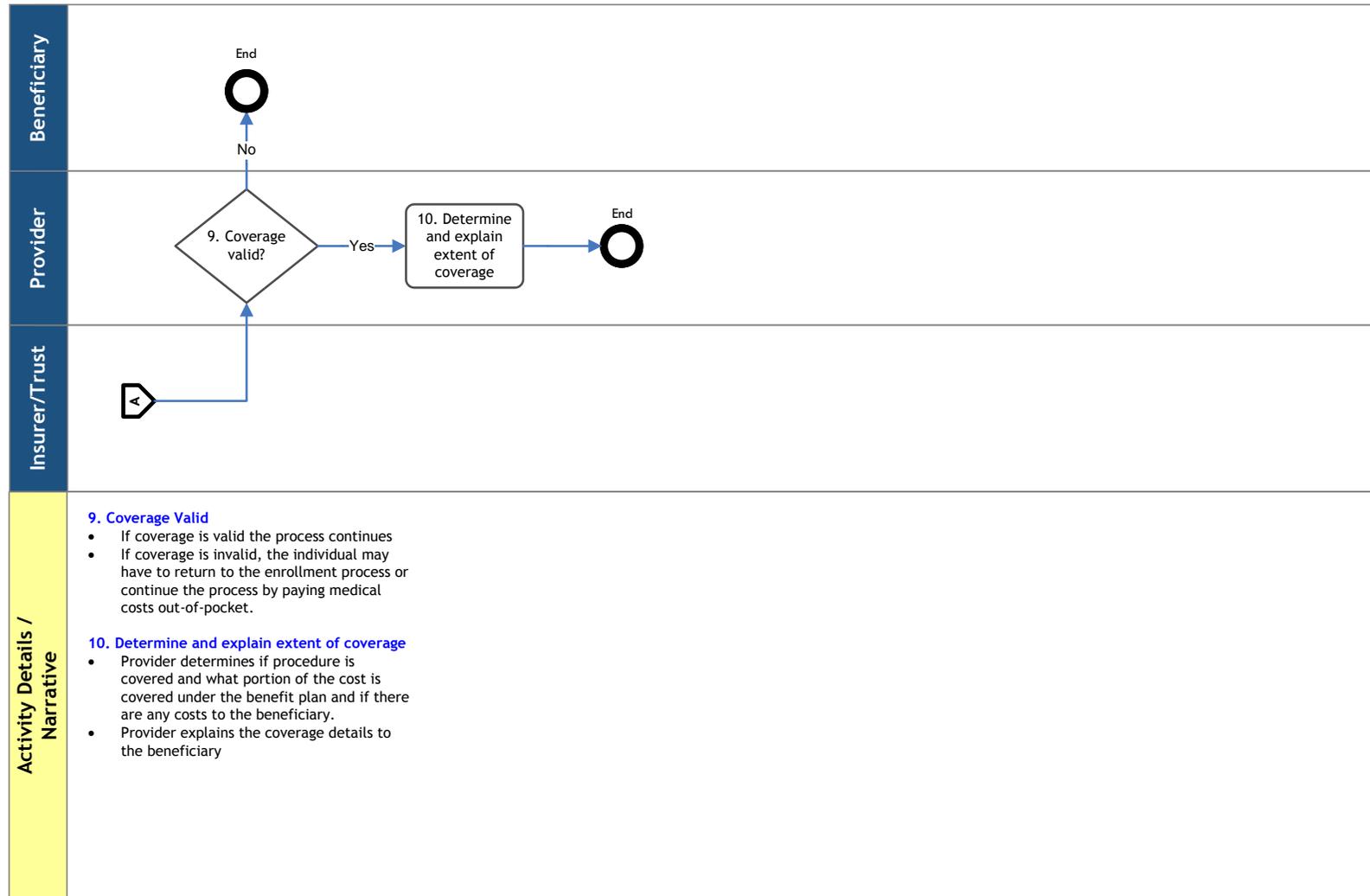
**Eligibility - Common**

1 of 2



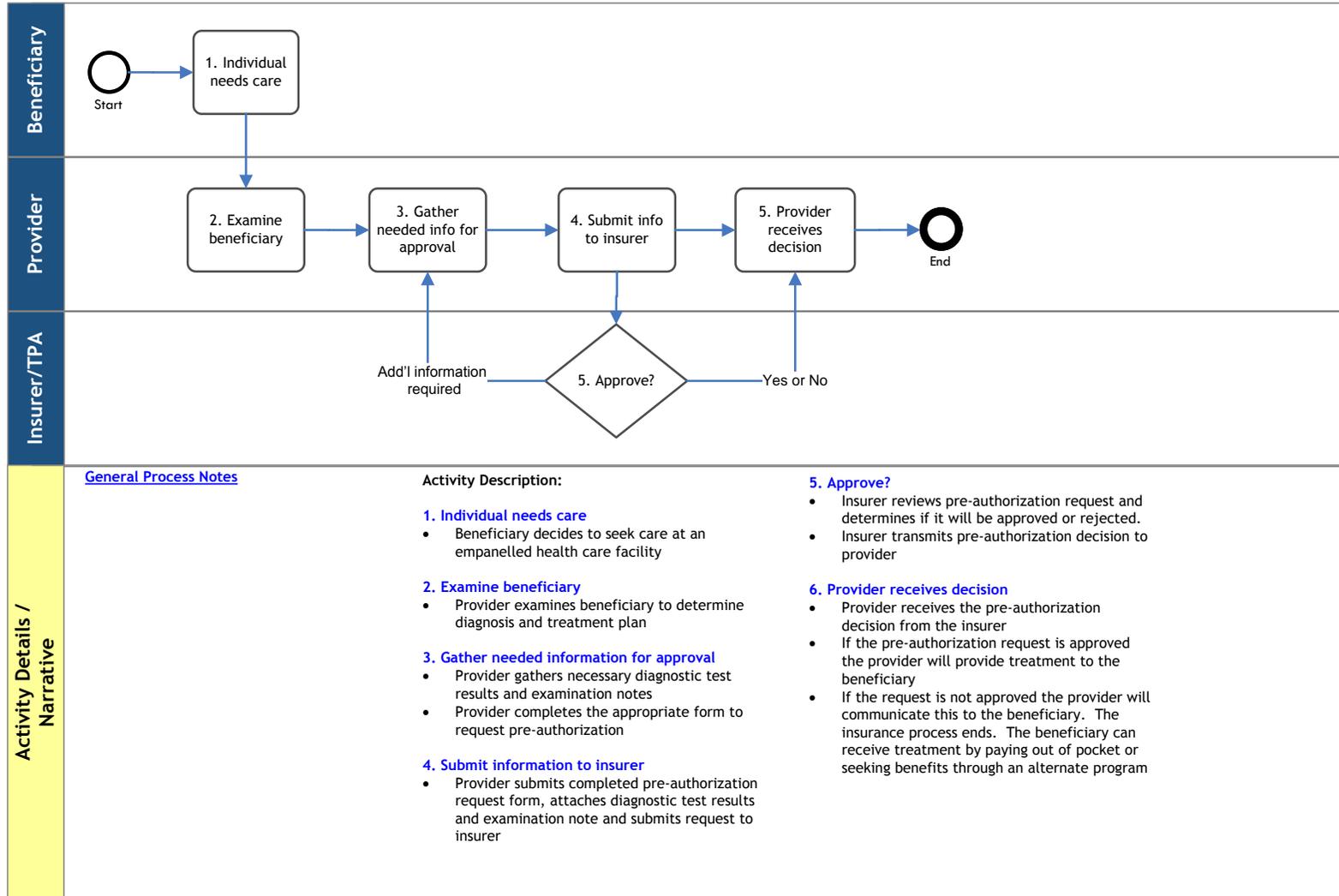
**Eligibility - Common**

2 of 2



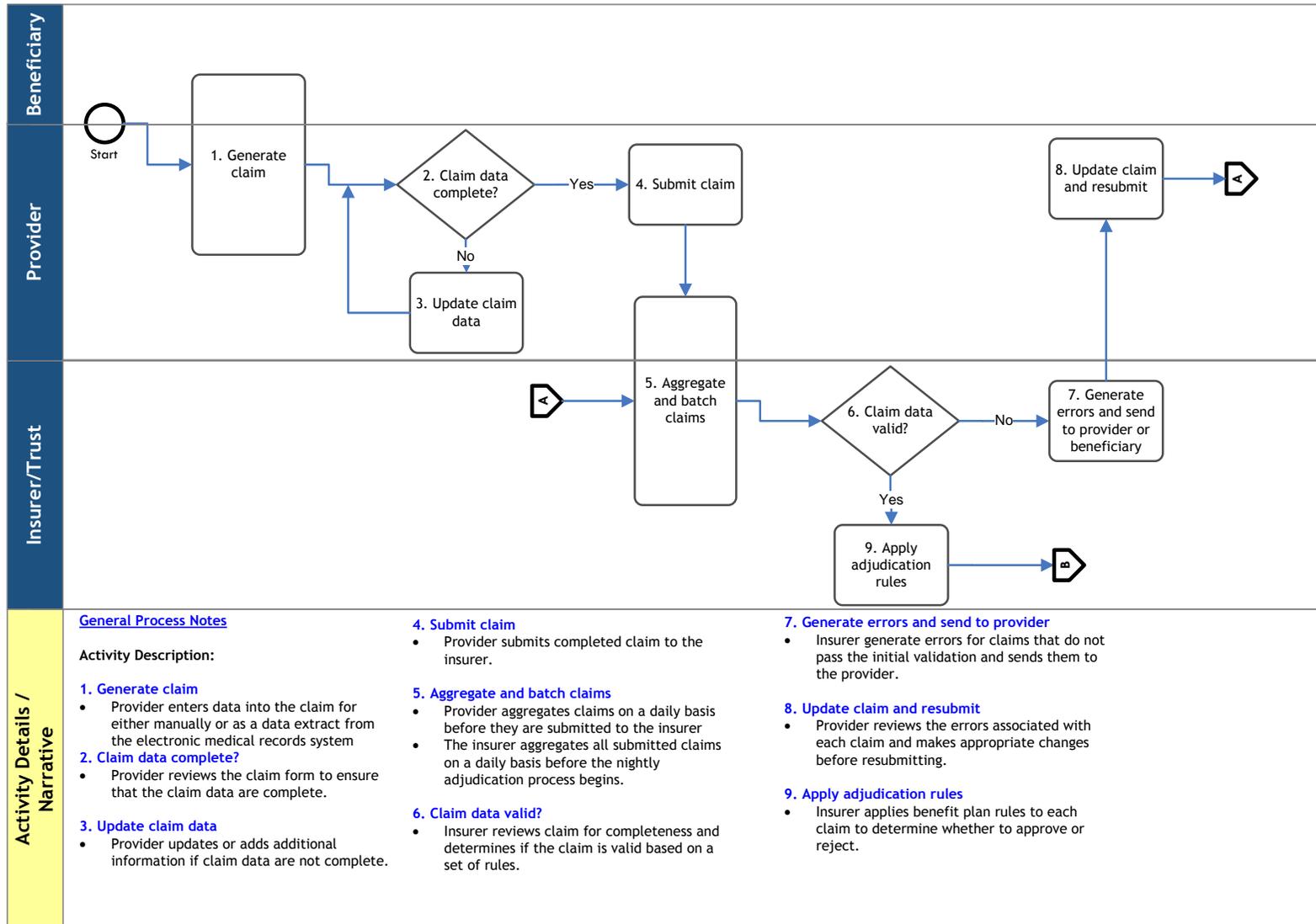
**Pre-authorization - Common**

1 of 1



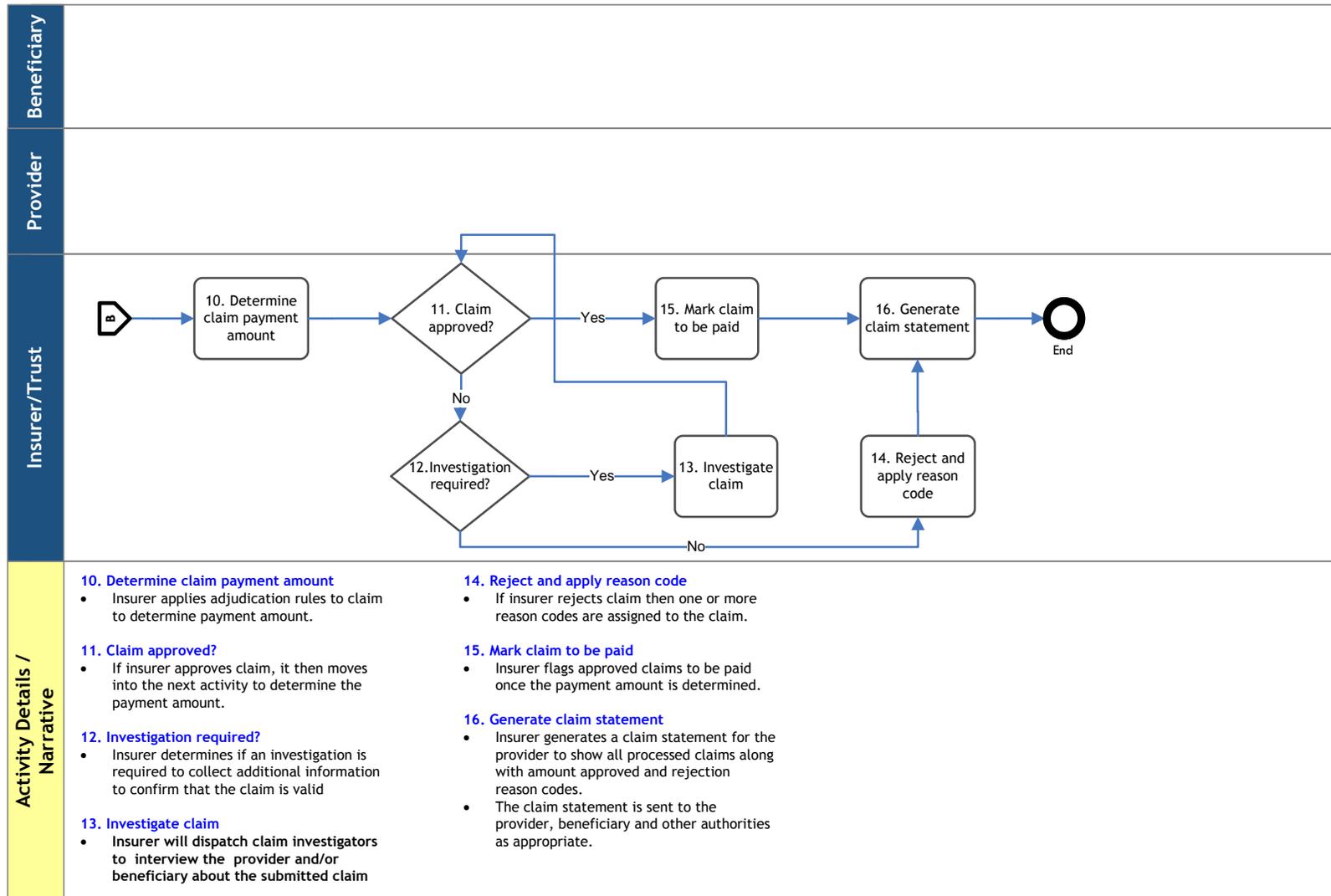
Claims Processing - Common

1 of 2



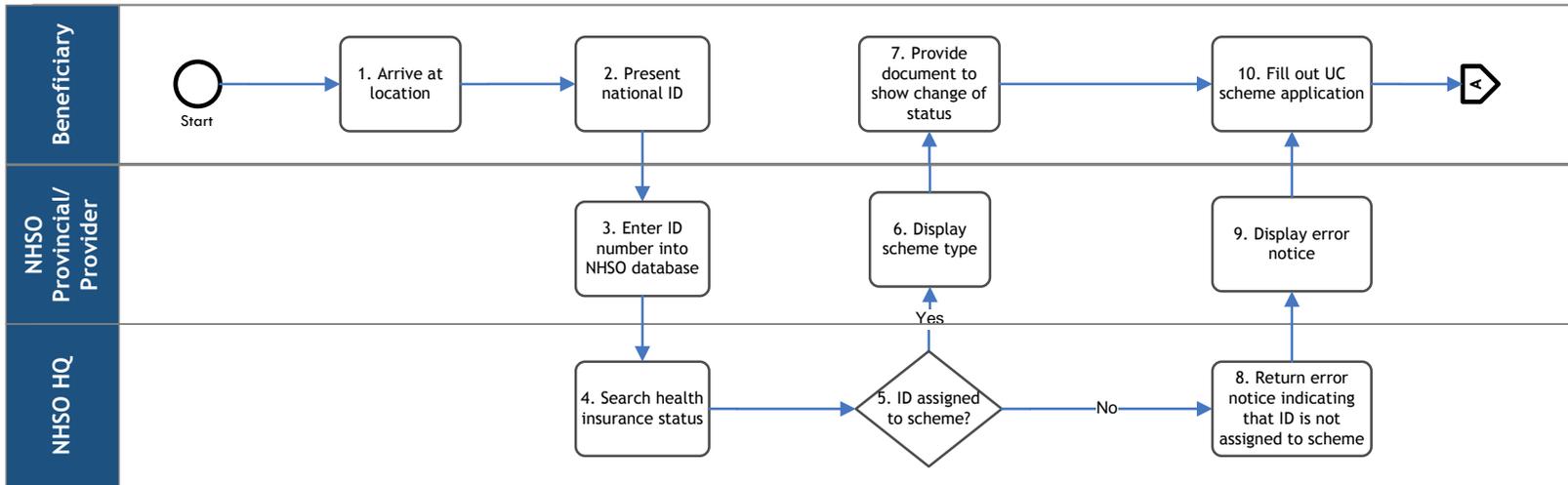
**Claims Processing - Common**

2 of 2



**Enroll Beneficiary - Thailand UC Scheme**

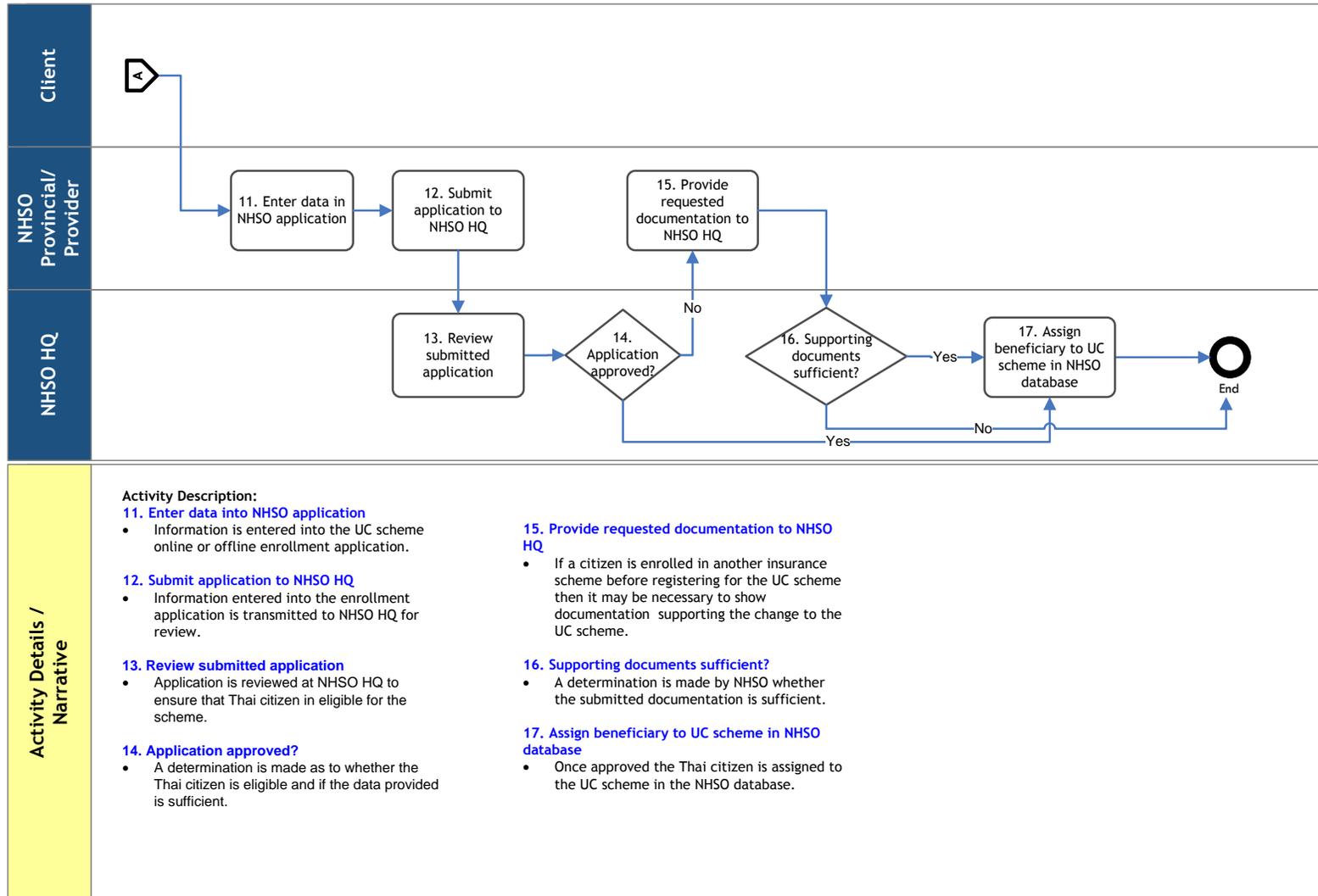
1 of 2



<b>Activity Details / Narrative</b>	<p><b>Enrollment Prerequisite:</b> Coverage under the UC Scheme is limited to Thai citizens with a national ID number. Special considerations are taken into account for newborns and persons under the age of 15.</p> <p><b>General Process Notes:</b></p> <ul style="list-style-type: none"> <li>You can register at the hospital before or after you get sick. When you arrive at the hospital you will need to provide a National ID. The hospital will look into the national health insurance registration system which will show an indicator to which scheme the person belongs. If person is not registered and needs care the provider will collect the citizen card plus the claim code. Care will be provided immediately and there is no need to wait for the registration to occur.</li> <li>The enrollment registration database is harmonized by NHSO with data from all three schemes. The database is updated twice per month. The synchronization of the databases occurs on the 15<sup>th</sup> and 30<sup>th</sup> of each month. The data updates include new persons, address changes, and insurance coverage scheme indicator changes.</li> </ul>	<p><b>Activity Description:</b></p> <p><b>1. Arrive at location</b></p> <ul style="list-style-type: none"> <li>Citizens can register for the UC scheme at sub district locations, hospital, the NHSO provincial office or NHSO Headquarters.</li> <li>Registration can take place through direct online entry by location personnel, through a resident application which is uploaded later to the NHSO, or by contacting the call center.</li> <li>Once the paper version is completed it is sent to the nearest hospital or NHSO provincial location for entry into the NHSO registration database.</li> </ul> <p><b>2. Present national ID</b></p> <ul style="list-style-type: none"> <li>Coverage under the UC scheme is limited to Thai citizens. All Thai citizens must have a National ID number. Enrollment into the UC Scheme is not possible without a national ID number.</li> </ul> <p><b>3. Enter ID number into NHSO database</b></p> <ul style="list-style-type: none"> <li>National ID number must be entered into database to determine insurance scheme.</li> </ul> <p><b>4. Search health insurance status?</b></p> <ul style="list-style-type: none"> <li>Query ID in NHSO database.</li> </ul>	<p><b>5. ID assigned to scheme?</b></p> <ul style="list-style-type: none"> <li>Determine if ID is assigned to a scheme.</li> </ul> <p><b>6. Display scheme type</b></p> <ul style="list-style-type: none"> <li>Scheme type is displayed.</li> </ul> <p><b>7. Provide document to show change of status</b></p> <ul style="list-style-type: none"> <li>If status has changed prior to the twice per month database synchronization then documents must be provided to show evidence of this change.</li> </ul> <p><b>8. Return error notice indicating that ID is not assigned to a scheme</b></p> <ul style="list-style-type: none"> <li>If ID is not assigned to a scheme then an error message is returned.</li> </ul> <p><b>9. Display error notice</b></p> <ul style="list-style-type: none"> <li>Error message is displayed indicating that the ID entered is not assigned to a scheme.</li> </ul> <p><b>10. Fill out UC scheme application</b></p> <ul style="list-style-type: none"> <li>Person must complete necessary information to register to the UC scheme.</li> </ul>
-------------------------------------	---	---	---

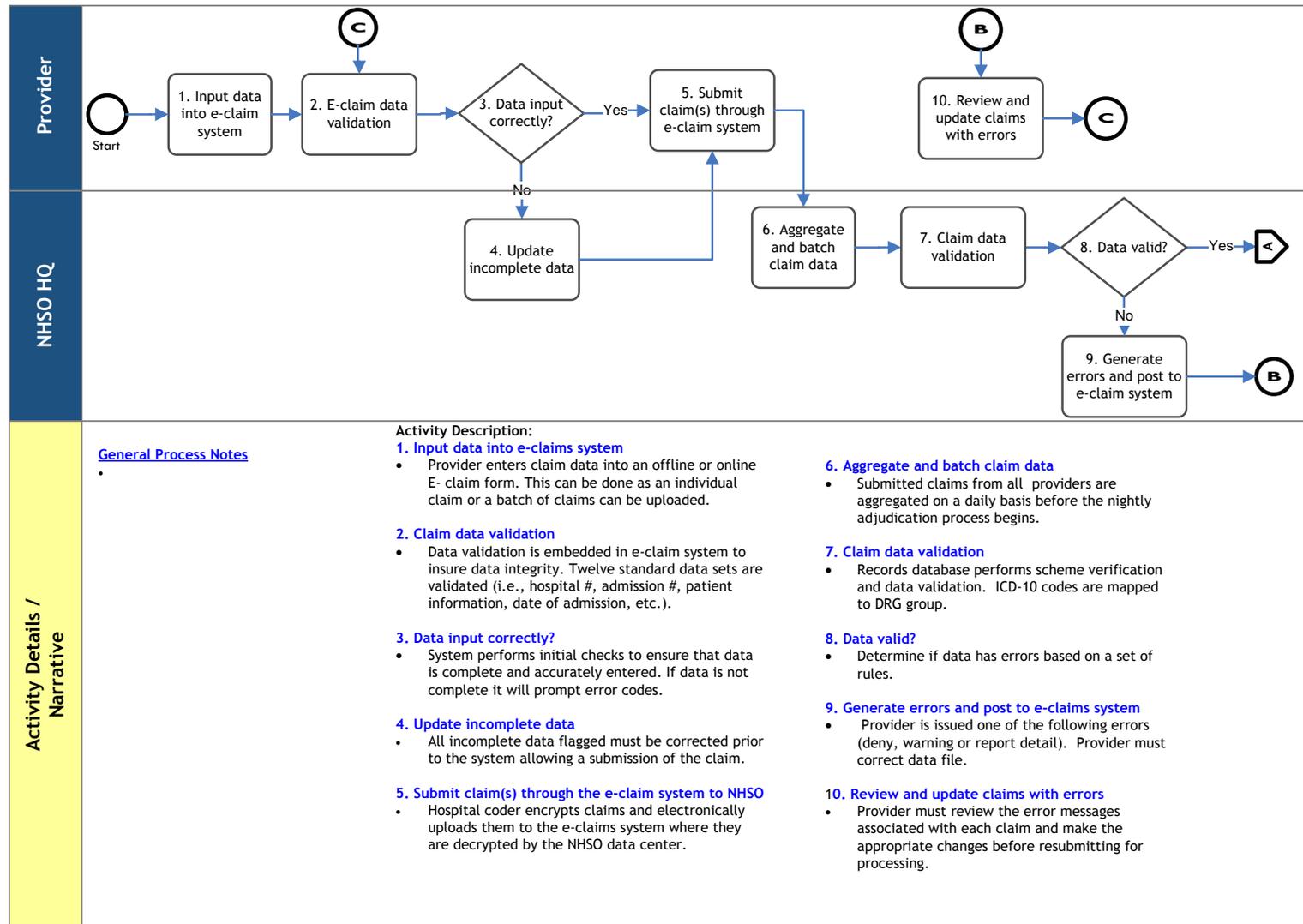
**Enroll Beneficiary - Thailand UC Scheme**

2 of 2



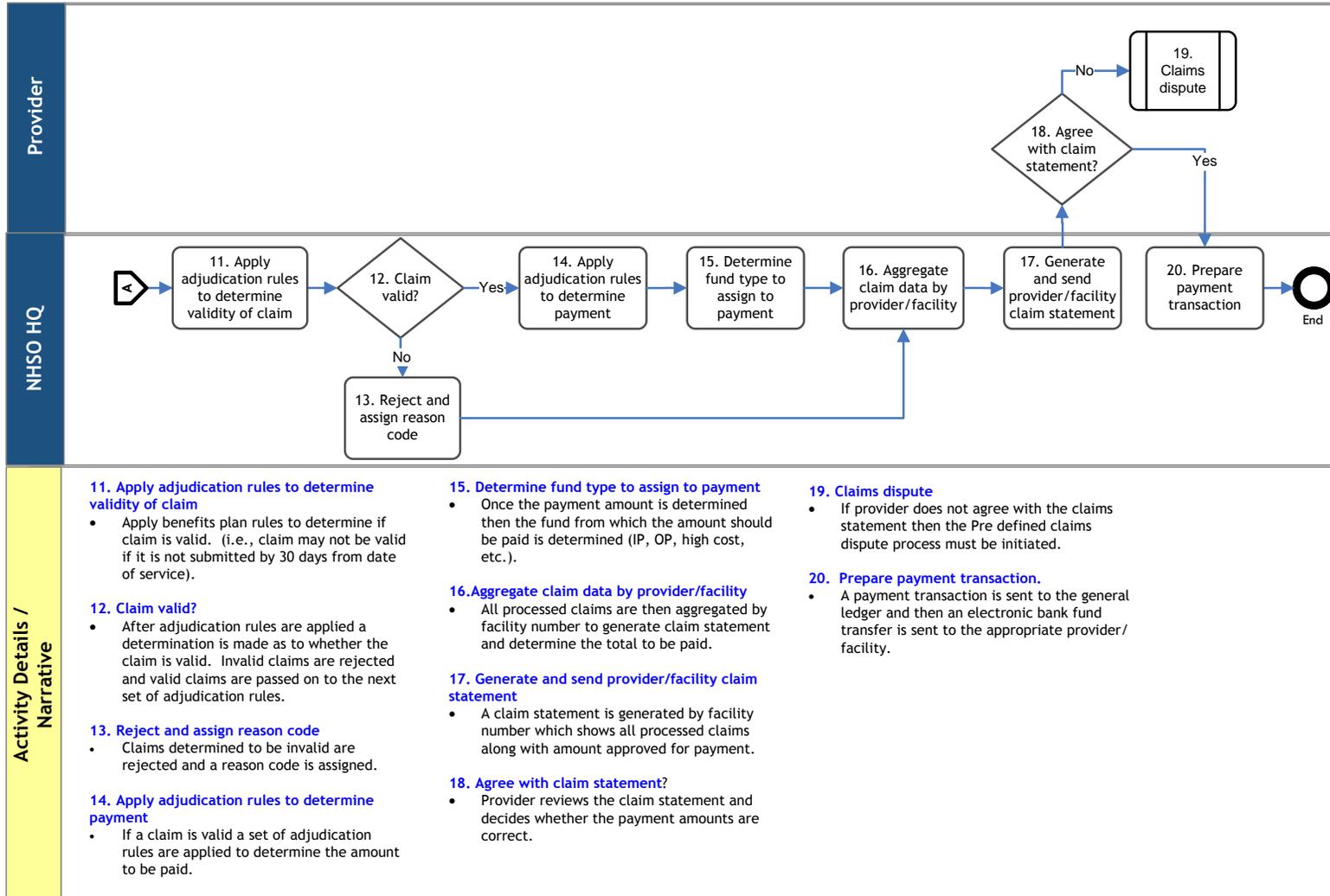
**Claims Processing**

1 of 2



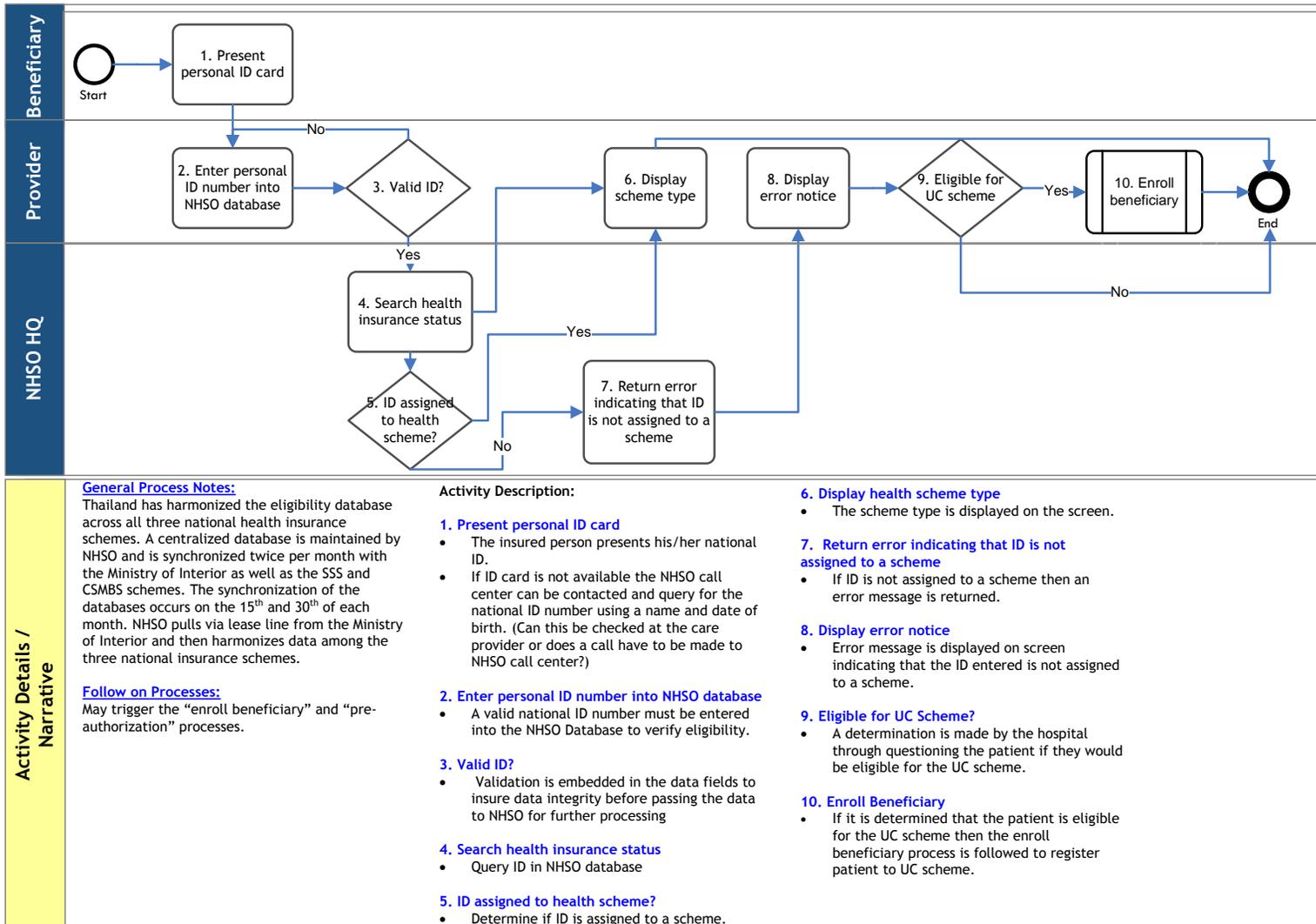
Claims Processing

2 of 2



**Eligibility Inquiry**

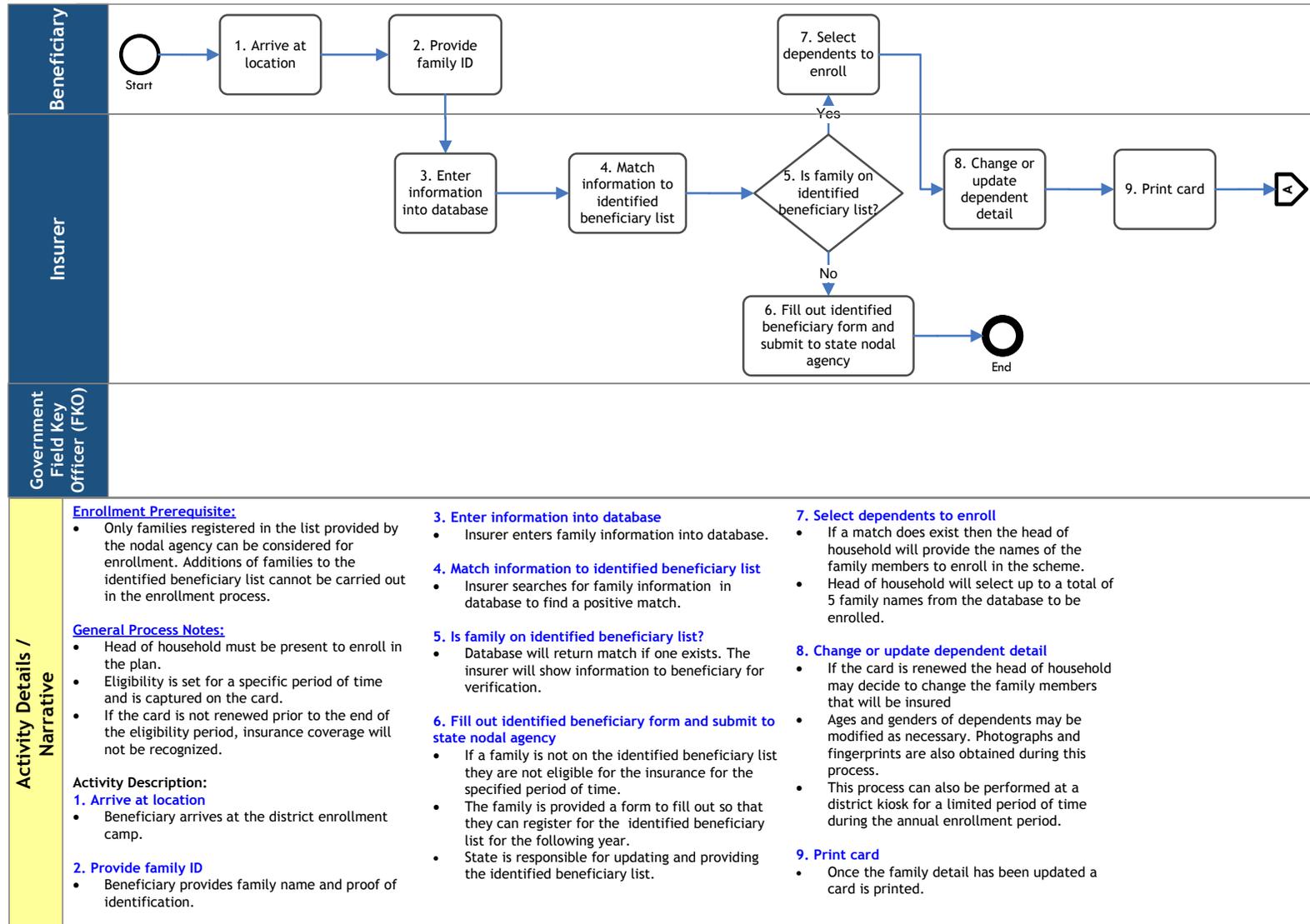
1 of 1



DRAFT Version 09/19/2011

**Enrollment (India- RSBY)**

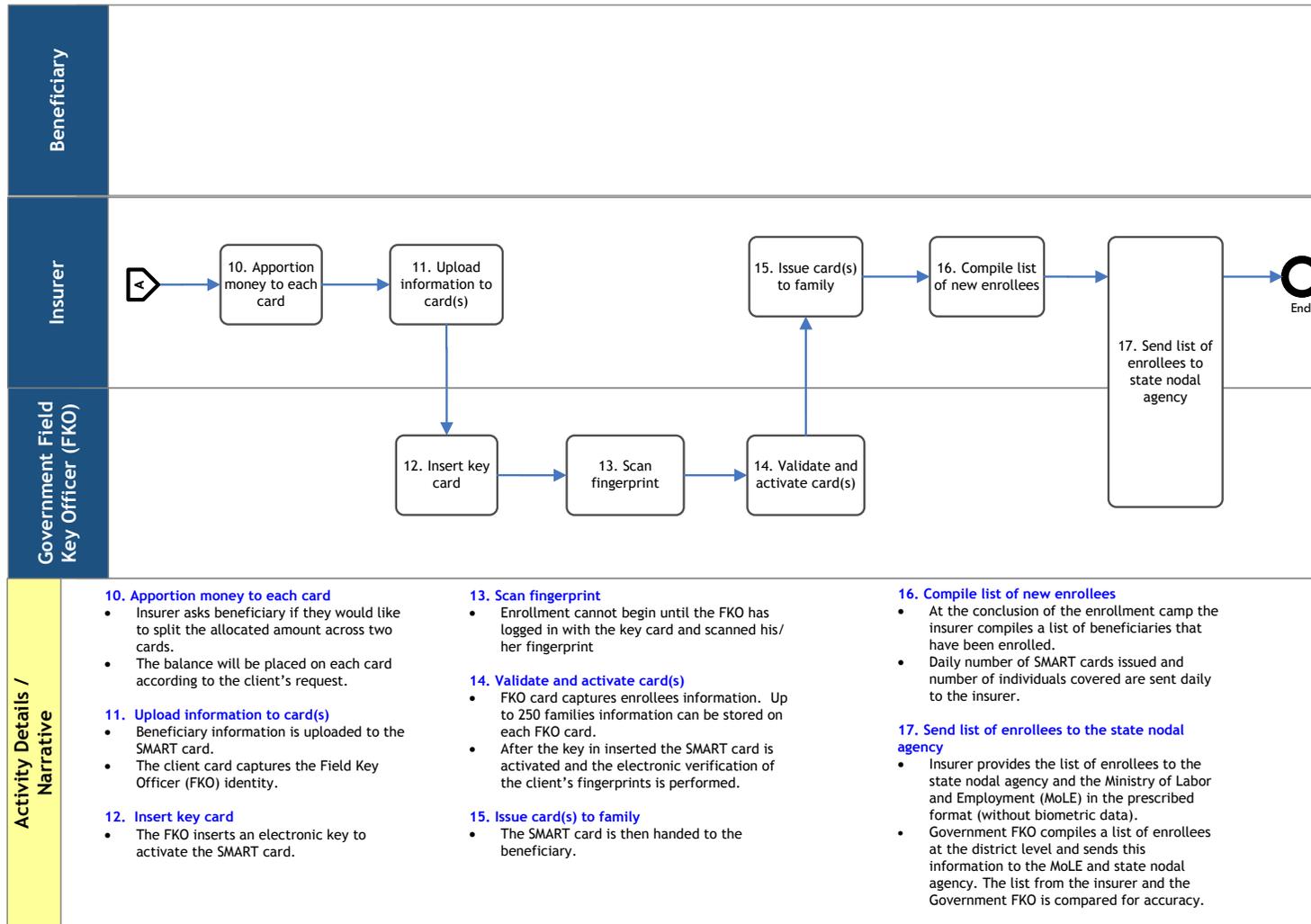
1 of 2



DRAFT Version 09/21/2011

**Enrollment (India- RSBY)**

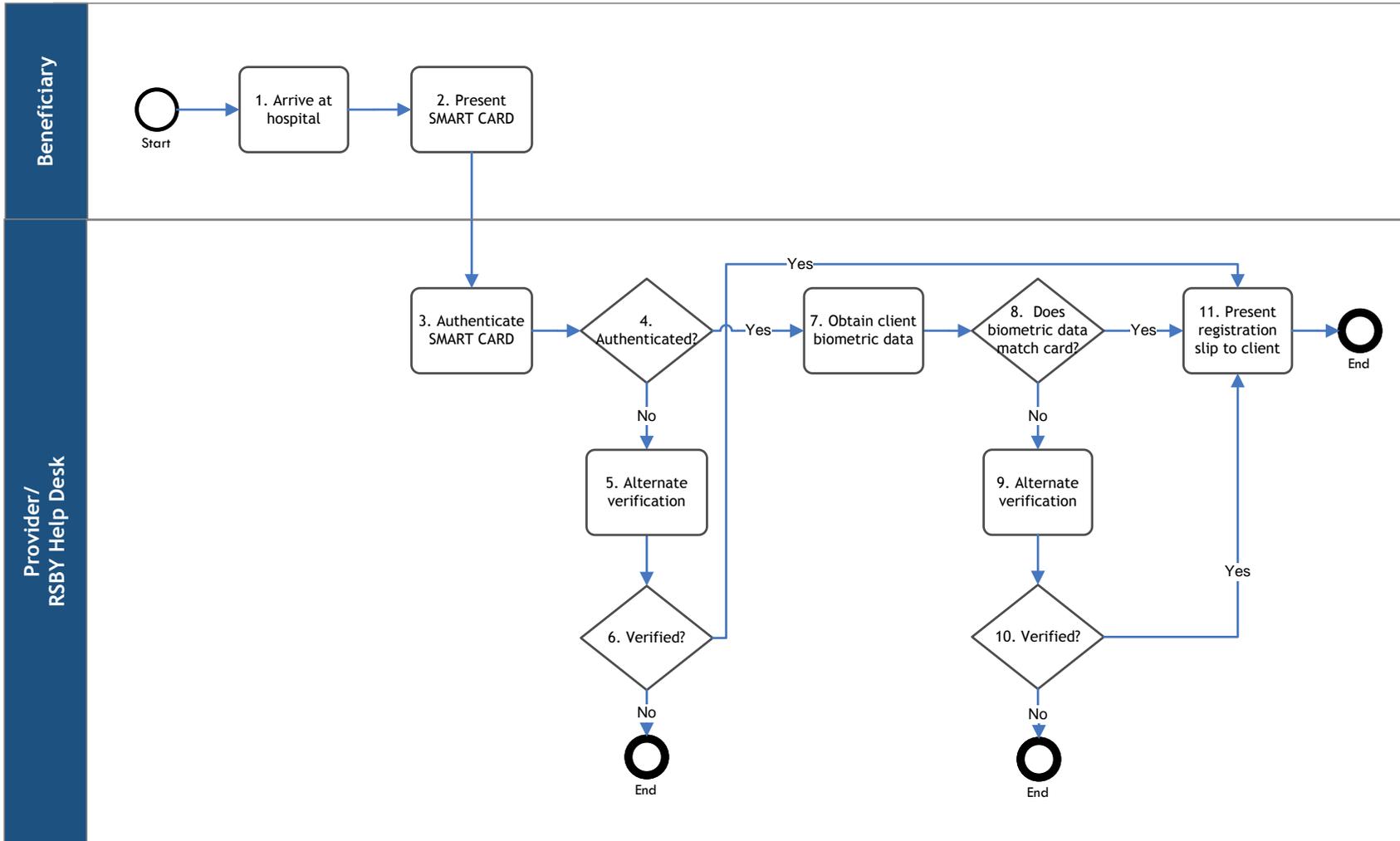
2 of 2



DRAFT Version 09/21/2011

### Eligibility (India - RSBY)

1 of 2



DRAFT Version 09/21/2011

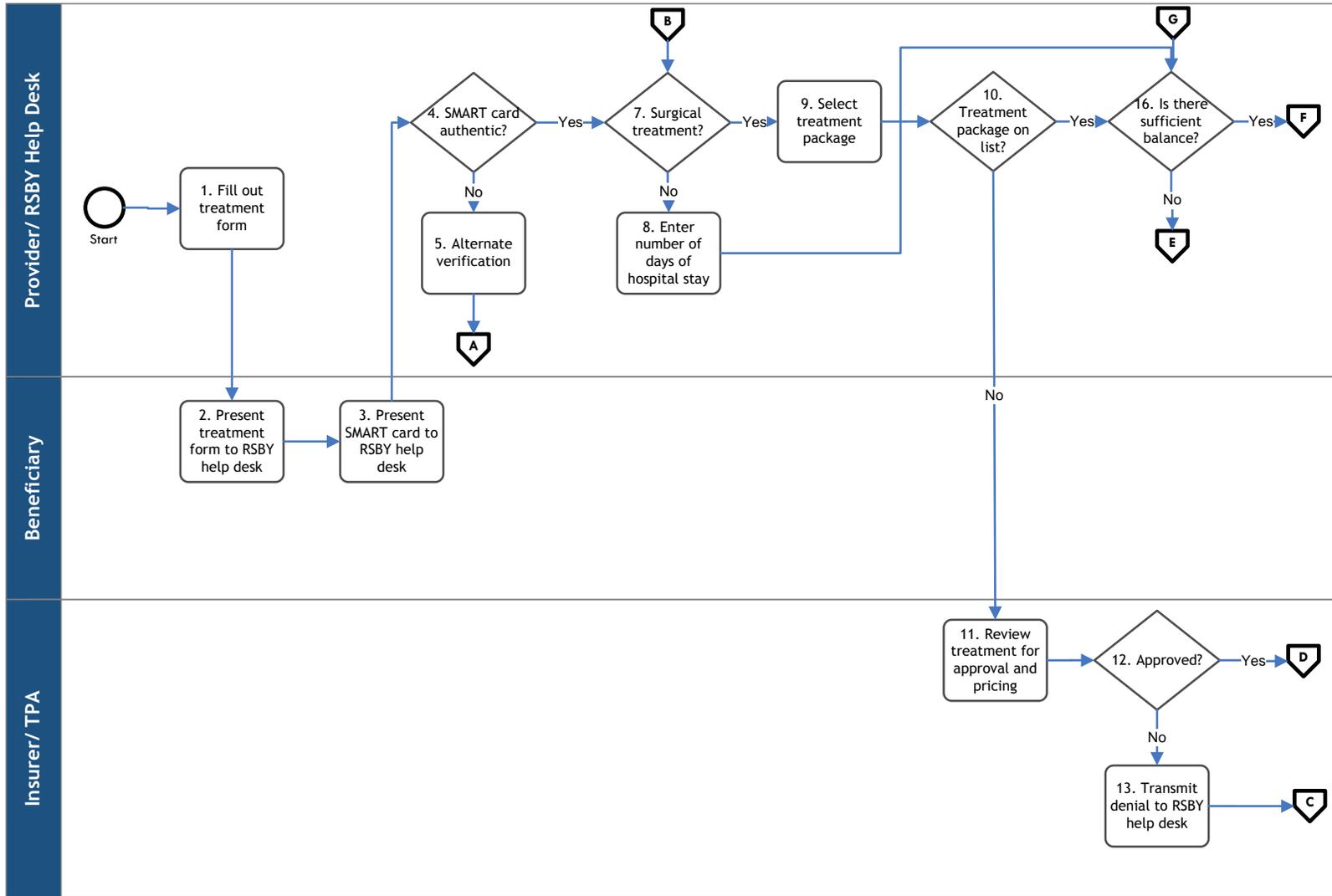
**Eligibility (India - RSBY)**

2 of 2

<p>Activity Details / Narrative</p>	<p><u>General Process Notes</u></p> <ul style="list-style-type: none"> <li>Hospital is required to purchase dedicated hardware. Software is provided by the insurer or TPA.</li> <li>Hospital authentication SMART CARD must be present in order to authenticate client cards.</li> <li>Refer to <a href="http://rsby.gov.in/Documents.aspx?ID=3">http://rsby.gov.in/Documents.aspx?ID=3</a> for more detail.</li> </ul>	<p><b>Activity Description:</b></p> <p><b>1. Arrive at hospital</b></p> <ul style="list-style-type: none"> <li>Beneficiary arrives at an empanelled hospital and proceeds to the RSBY help desk.</li> </ul> <p><b>2. Present SMART CARD</b></p> <ul style="list-style-type: none"> <li>Beneficiary presents SMART card to RSBY helpdesk attendant.</li> </ul> <p><b>3. Authenticate SMART CARD</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant inserts card into card scanner and authenticates card to insure that it is valid.</li> </ul> <p><b>4. Authenticated?</b></p> <ul style="list-style-type: none"> <li>If the card is valid then the RSBY help desk attendant will obtain the biometric data.</li> <li>If someone arrives with an card that is damaged or unreadable then alternative means of verification are performed.</li> </ul> <p><b>5. Alternate verification</b></p> <ul style="list-style-type: none"> <li>A call can be made to the insurer/TPA to verify that the card presented is valid</li> <li>RSBY help desk attendant can also verify the person seeking treatment by comparing them to the photograph on the card.</li> </ul> <p><b>6. Verified?</b></p> <ul style="list-style-type: none"> <li>If the insurer/TPA determines that the card is not valid then the process ends.</li> <li>If the card is valid then the process continues.</li> </ul> <p><b>7. Obtain client biometric data</b></p> <ul style="list-style-type: none"> <li>The RSBY help desk attendant asks the client to place a finger on the biometric scanner.</li> </ul> <p><b>8. Does biometric data match card?</b></p> <ul style="list-style-type: none"> <li>The finger print is then scanned and matched to the data on the card. If there is a match the attendant will proceed to print a registration slip.</li> <li>If the biometric data cannot be verified then alternative means of verification are performed.</li> </ul> <p><b>9. Alternate verification</b></p> <ul style="list-style-type: none"> <li>A call can be made to the insurer/TPA to verify that the card presented is valid.</li> <li>RSBY help desk attendant can also verify the person seeking treatment by comparing them to the photograph on the card.</li> <li>The fingerprint of any other family member registered to the same card can be used for verification.</li> </ul> <p><b>10. Verified?</b></p> <ul style="list-style-type: none"> <li>If the insurer/TPA determine that the card is not valid then the process ends.</li> <li>If the card is valid then the process continues.</li> </ul> <p><b>11. Present registration slip to client</b></p> <ul style="list-style-type: none"> <li>The RSBY help desk attendant prints a registration slip and presents it to the client.</li> </ul>
---	--	--

Claims Processing (India - RSBY)

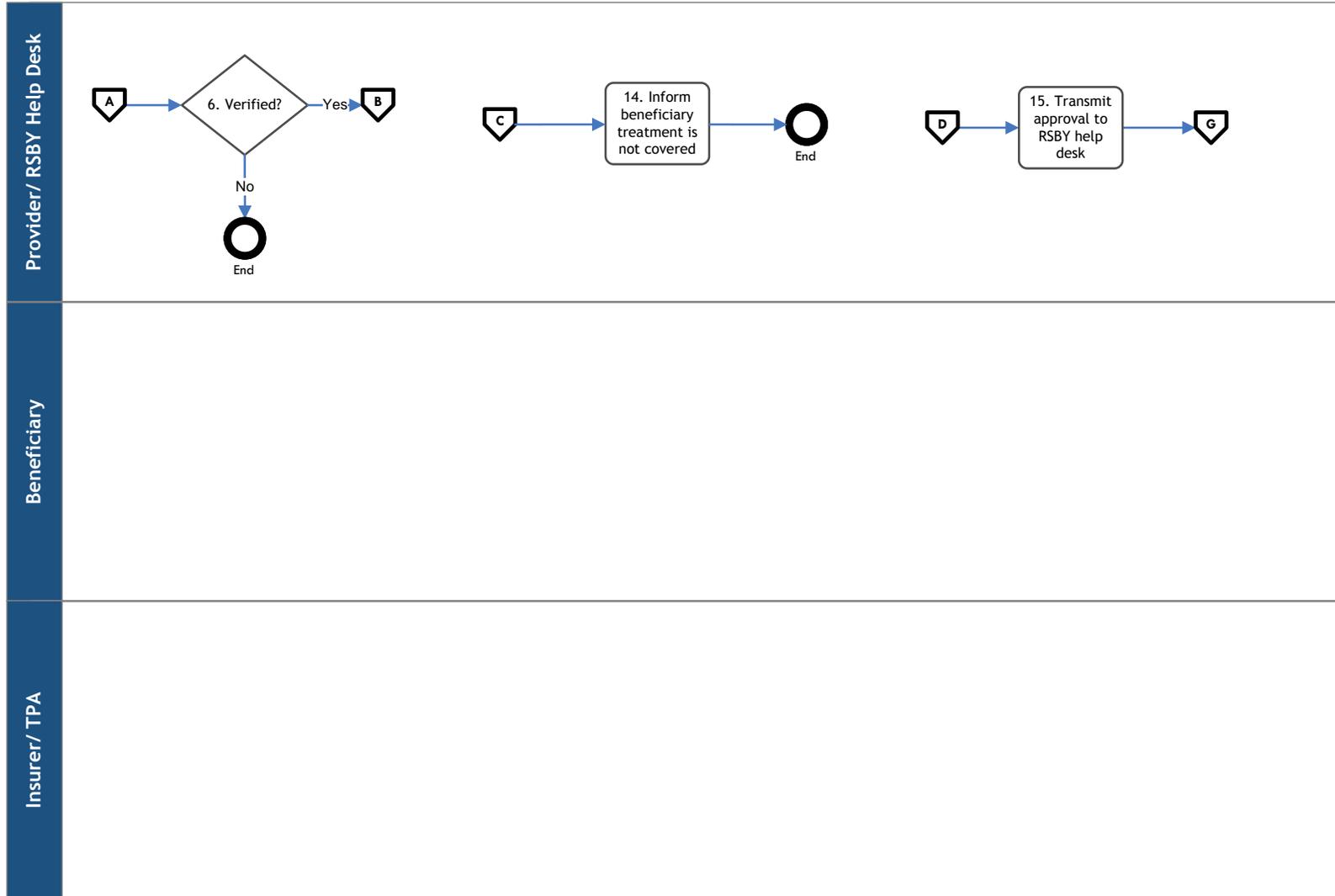
1 of 7



DRAFT Version 09/21/2011

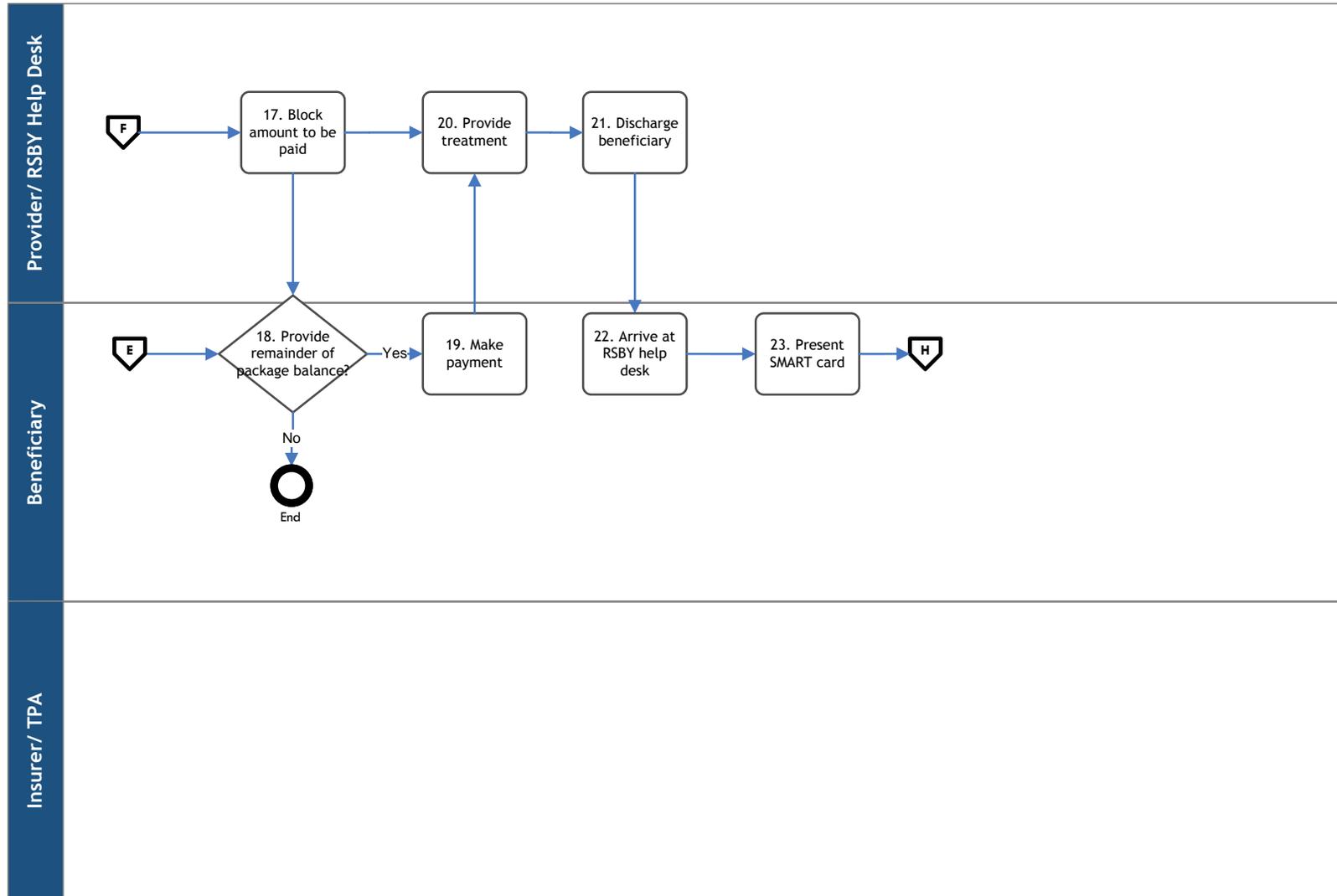
**Claims Processing (India - RSBY)**

2 of 7



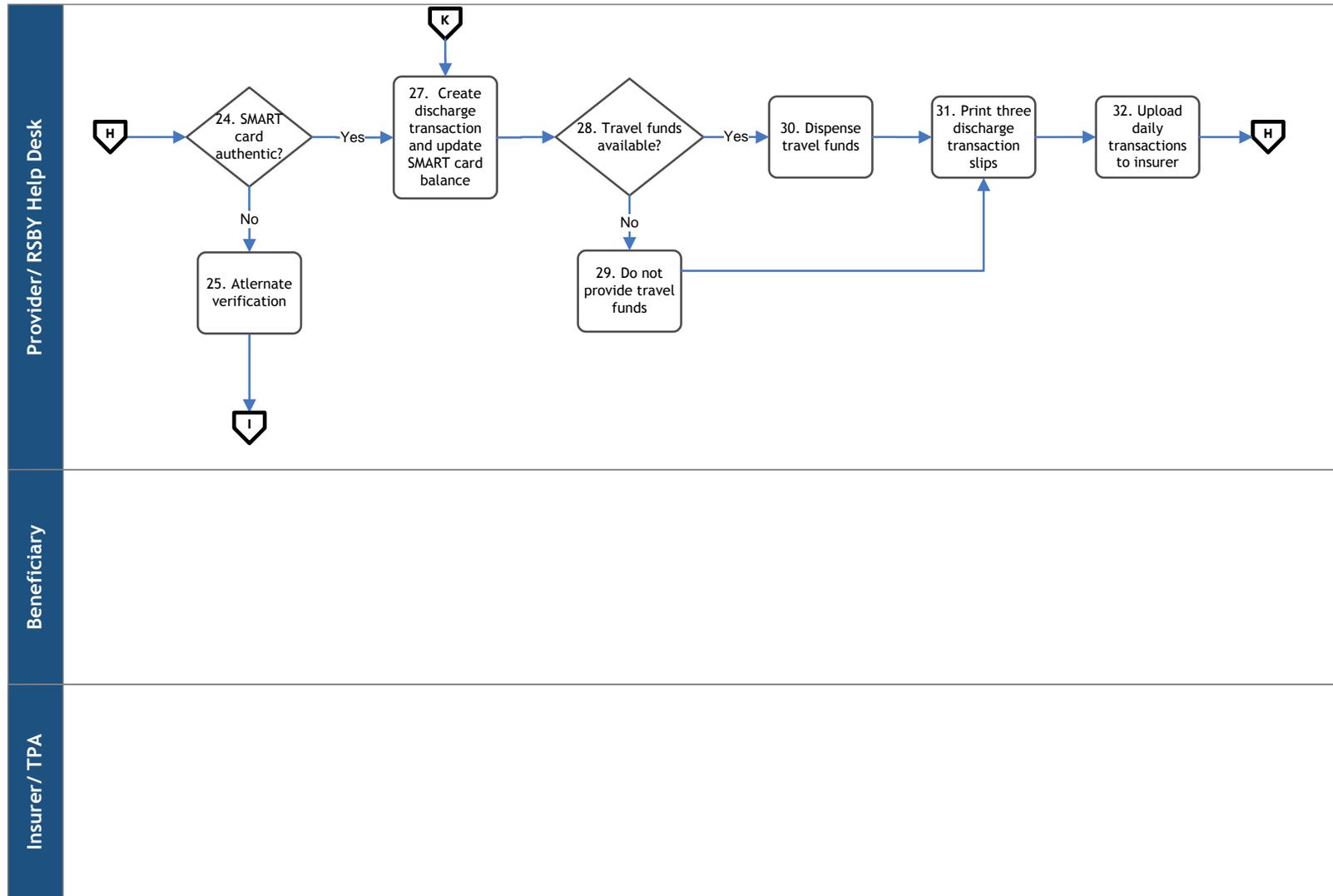
**Claims Processing (India - RSBY)**

3 of 7



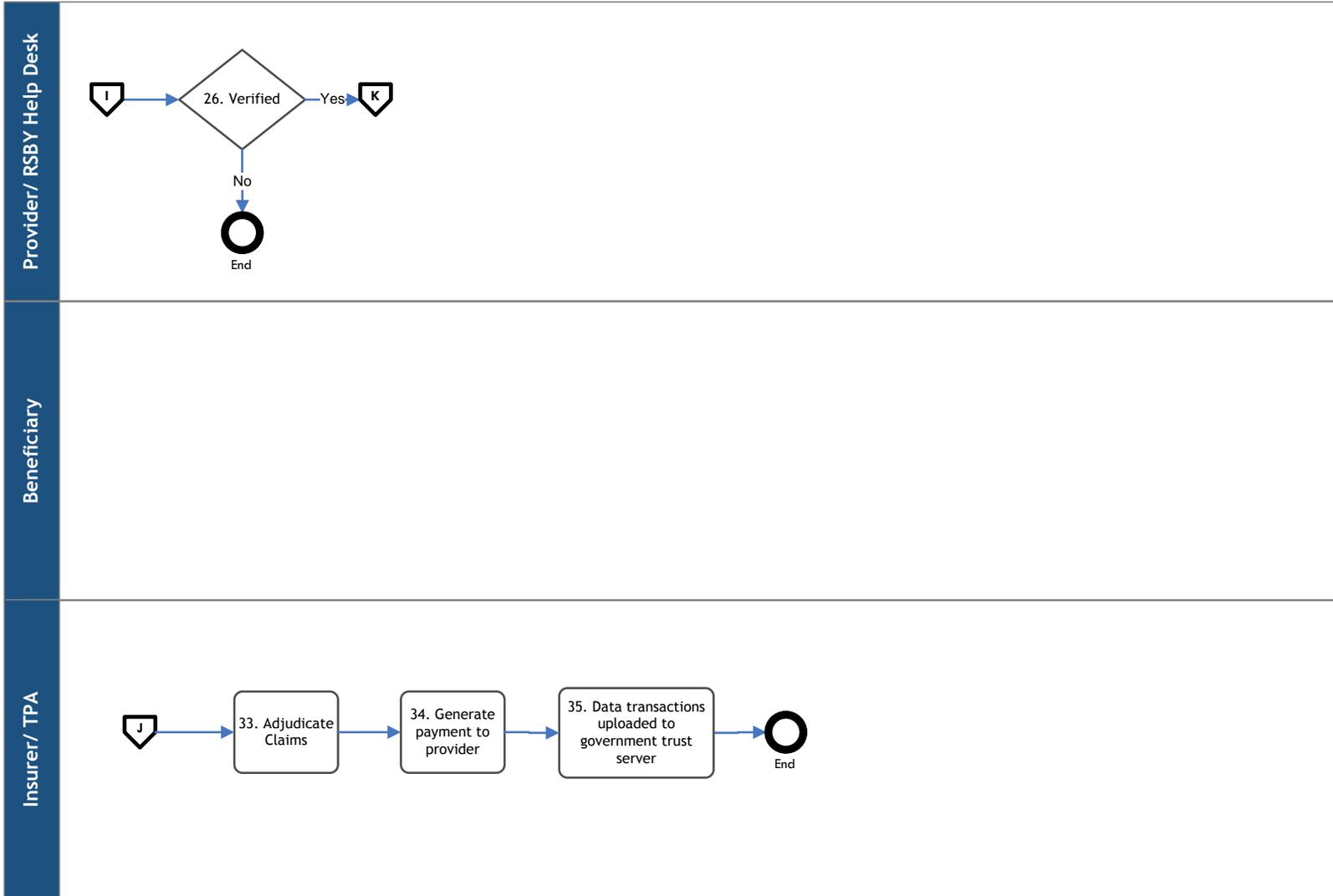
**Claims Processing (India - RSBY)**

4 of 7



**Claims Processing (India - RSBY)**

5 of 7



**Claims Processing (India - RSBY)**

6 of 7

<b>Activity Details / Narrative</b>	<p><u>General Process Notes</u></p> <p>Activity Description:</p> <p><b>1.Fill out treatment form</b></p> <ul style="list-style-type: none"> <li>Provider examines beneficiary and completes a form with prescribed treatment package code, name and details.</li> </ul> <p><b>2. Present treatment form to RSBY help desk</b></p> <ul style="list-style-type: none"> <li>Beneficiary presents treatment form to the RSBY help desk attendant.</li> </ul> <p><b>3. Present SMART card to RSBY help desk</b></p> <ul style="list-style-type: none"> <li>Beneficiary presents SMART card and finger print for authentication.</li> </ul> <p><b>4. SMART card authentic?</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant inserts card into card scanner and authenticates card to insure that it is valid. The attendant will then obtain the biometric data in the finger print scanner. If there is a match between the card and finger print then the attendant will proceed to the next step.</li> <li>This process also ensures that the card balance is greater than zero.</li> </ul> <p><b>5. Alternate verification</b></p> <ul style="list-style-type: none"> <li>Insurer/TPA may be called for further authentication if technical difficulties are encountered.</li> <li>Insurer/TPA can verify that the card presented is valid.</li> <li>RSBY help desk attendant can also verify the person seeking treatment by comparing them to the photograph on the card</li> </ul> <p><b>6. Verified?</b></p> <ul style="list-style-type: none"> <li>If the insurer/TPA determine that the card is not valid then the process ends.</li> <li>If the card is valid then the process continues.</li> </ul> <p><b>7. Surgical treatment?</b></p> <ul style="list-style-type: none"> <li>RSBY Help desk attendant determines if a surgical treatment or medical stay is required based on the details on the treatment form.</li> </ul> <p><b>8. Enter number of days of hospital stay</b></p> <ul style="list-style-type: none"> <li>If a medical treatment (non-surgical) is required then an estimated number of days for the hospital stay must be entered.</li> </ul> <p><b>9. Select treatment package</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant will look at the treatment form and find the matching package list on the screen.</li> </ul> <p><b>10. Treatment on package list?</b></p> <ul style="list-style-type: none"> <li>The RSBY help desk attendant will look to see if the treatment package already exists and if not then will transmit data to the insurer for a determination of coverage.</li> </ul> <p><b>11. Review treatment for approval and pricing</b></p> <ul style="list-style-type: none"> <li>The insurer reviews the prescribed treatment that is not part of the existing list of services and determines if it should be covered by the scheme</li> <li>Negotiation on price for a treatment with provider may take place.</li> </ul> <p><b>12. Approved?</b></p> <ul style="list-style-type: none"> <li>Insurer makes a decision as to whether the prescribed treatment is covered by the scheme and a determination of the payment amount for treatment.</li> </ul> <p><b>13. Transmit denial to RSBY help desk</b></p> <ul style="list-style-type: none"> <li>Insurer transmits denial of coverage to the RSBY help desk.</li> </ul> <p><b>14. Inform beneficiary that treatment is not covered</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant informs the beneficiary that the treatment is not covered by the scheme.</li> </ul> <p><b>15. Transmit approval to RSBY help desk</b></p> <ul style="list-style-type: none"> <li>Insurer transmits approval and payment amount of the treatment to the RSBY help desk.</li> </ul> <p><b>16. Is there sufficient balance?</b></p> <ul style="list-style-type: none"> <li>After selecting the treatment type the RSBY help desk attendant checks the balance on the SMART card to ensure that there are sufficient funds to cover the surgical treatment or number of days of hospital stay.</li> </ul> <p><b>17. Block amount to be paid</b></p> <ul style="list-style-type: none"> <li>RSBY then reserves the necessary amount of the treatment on the SMART card.</li> <li>Treatment associated with amount is written to the card.</li> </ul> <p><b>18. Provide remainder of package balance?</b></p> <ul style="list-style-type: none"> <li>In the instance that there is an insufficient balance available on the card, the RSBY help desk attendant will ask the beneficiary for the difference between total treatment cost and balance on the SMART card.</li> <li>The beneficiary decides if he/she will provide the amount necessary to pay for the prescribed treatment. If the beneficiary decides not to provide the balance the process ends. The beneficiary may then apply for the Chief Minister Fund to cover their necessary treatment.</li> </ul> <p><b>19. Make a payment</b></p> <ul style="list-style-type: none"> <li>The beneficiary makes a payment for the remaining balance for the prescribed treatment.</li> </ul>
---	--

DRAFT Version 09/21/2011

**Claims Processing (India - RSBY)**

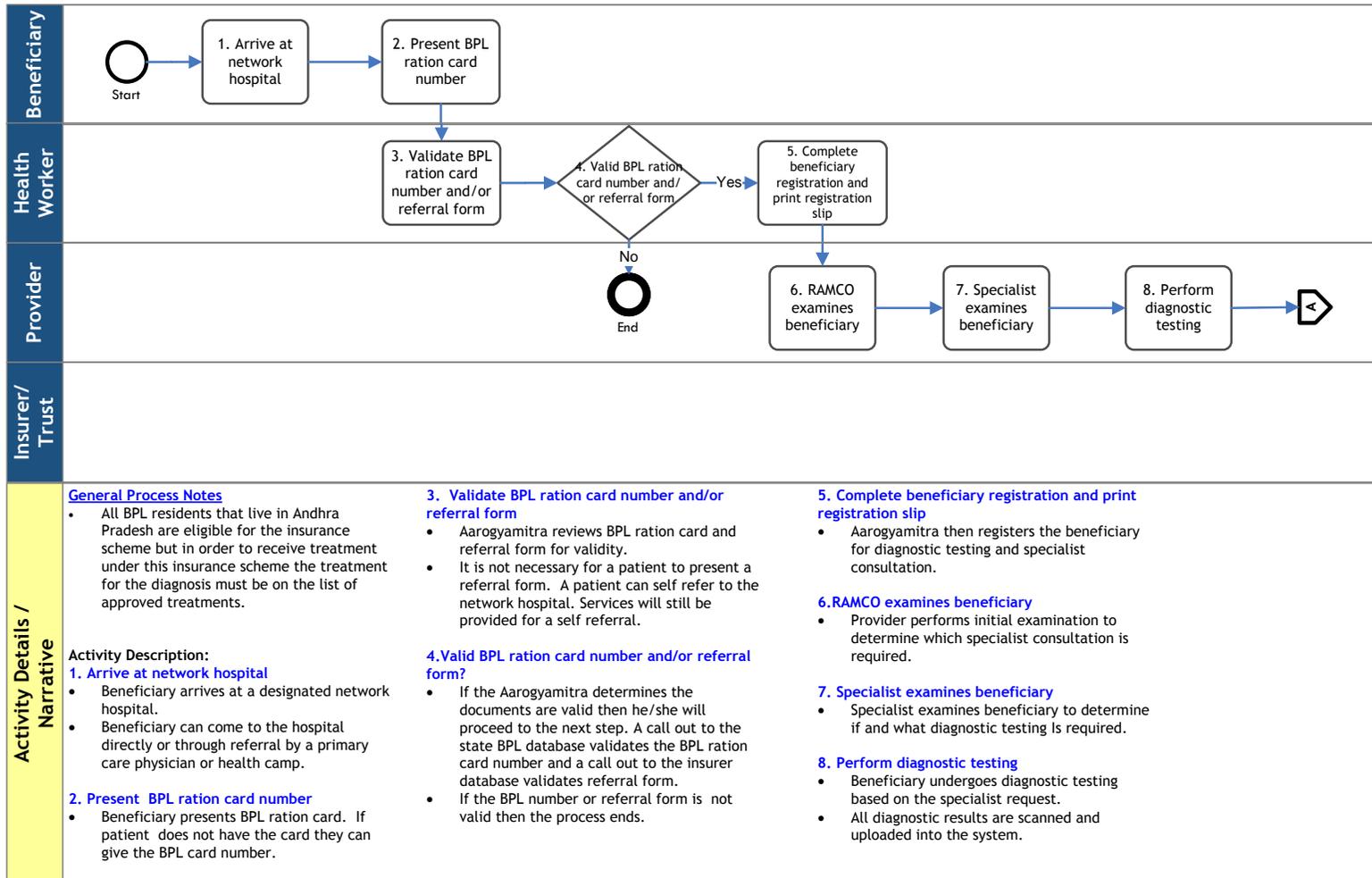
Tof 7

<b>Activity Details / Narrative</b>	<p><b>20. Provide treatment</b></p> <ul style="list-style-type: none"> <li>The provider performs the necessary treatment.</li> </ul> <p><b>21. Discharge beneficiary</b></p> <ul style="list-style-type: none"> <li>Provider discharges patient after recovery from treatment.</li> </ul> <p><b>22. Arrive at RSBY help desk</b></p> <ul style="list-style-type: none"> <li>Discharged beneficiary arrives at the RSBY help desk.</li> </ul> <p><b>23. Present SMART CARD</b></p> <ul style="list-style-type: none"> <li>Beneficiary presents SMART card and finger print for authentication.</li> </ul> <p><b>24. SMART CARD authentic?</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant inserts card into card scanner and authenticates card to insure that it is valid. The attendant will then obtain the biometric data in the finger print scanner. If there is a match between the card and finger print then the attendant will proceed to the next step.</li> </ul> <p><b>25. Alternate verification</b></p> <ul style="list-style-type: none"> <li>Insurer/TPA may be called for further authentication if technical difficulties are encountered.</li> <li>Insurer/TPA can verify that the card presented is valid.</li> <li>RSBY help desk attendant can also verify the person seeking treatment by comparing them to the photograph on the card.</li> </ul> <p><b>26. Verified?</b></p> <ul style="list-style-type: none"> <li>If the insurer/TPA determine that the card is not valid then the process ends.</li> <li>If the card is valid then the process continues.</li> </ul> <p><b>27. Create discharge transaction and update SMART card balance</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant creates a bill payment transaction which updates the available balance on the SMART card.</li> </ul> <p><b>28. Travel funds available?</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant determines if there are remaining travel funds on the SMART card.</li> </ul> <p><b>29. Do not provide travel funds</b></p> <ul style="list-style-type: none"> <li>If there are not any remaining funds the RSBY help desk attendant will not provide any travel funds to the beneficiary.</li> <li>Data is stored on hospital database and card then synched daily to the insured/TPA server.</li> </ul> <p><b>30. Dispense travel funds</b></p> <ul style="list-style-type: none"> <li>If there are remaining funds the RSBY help desk attendant will provide appropriate amount of travel funds to the client and the travel fund counter is updated.</li> </ul> <p><b>31. Print three discharge transaction slips</b></p> <ul style="list-style-type: none"> <li>RSBY help desk attendant prints three discharge transaction slips.</li> <li>One slip is presented to the beneficiary and one is filed for the hospital. The third is filed for the insurer/TPA.</li> </ul> <p><b>32. Upload daily transactions</b></p> <ul style="list-style-type: none"> <li>At a fixed time each day, al of the insurance transaction information is uploaded to the insurer/TPA server.</li> </ul> <p><b>33. Adjudicate claims</b></p> <ul style="list-style-type: none"> <li>The insurer applies the appropriate adjudication rules to the claims.</li> </ul> <p><b>34. Generate payment to provider</b></p> <ul style="list-style-type: none"> <li>If claims are valid and meet the adjudication rules then an check or e-payment is prepared and sent to the provider within 21 days of submitting the claim.</li> </ul> <p><b>35. Data transactions uploaded to government trust server</b></p> <ul style="list-style-type: none"> <li>Data is uploaded from the insurer/TPA to the trust server on a monthly basis.</li> </ul>
---	---

# Determining Common Requirements for National Health Insurance Information Systems

## Eligibility (India - Rajiv Aarogyasri)

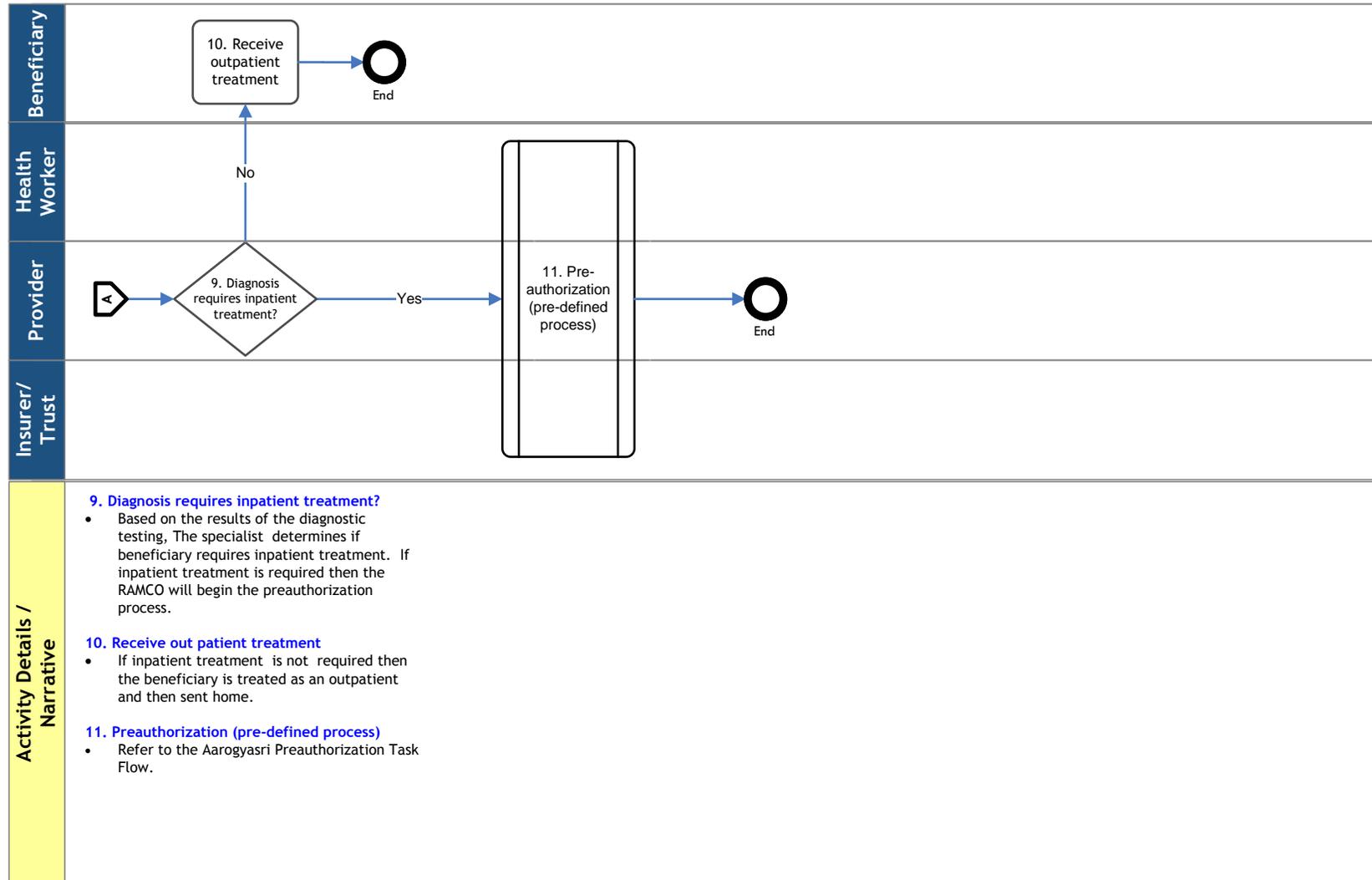
1 of 2



DRAFT Version 09/21/2011

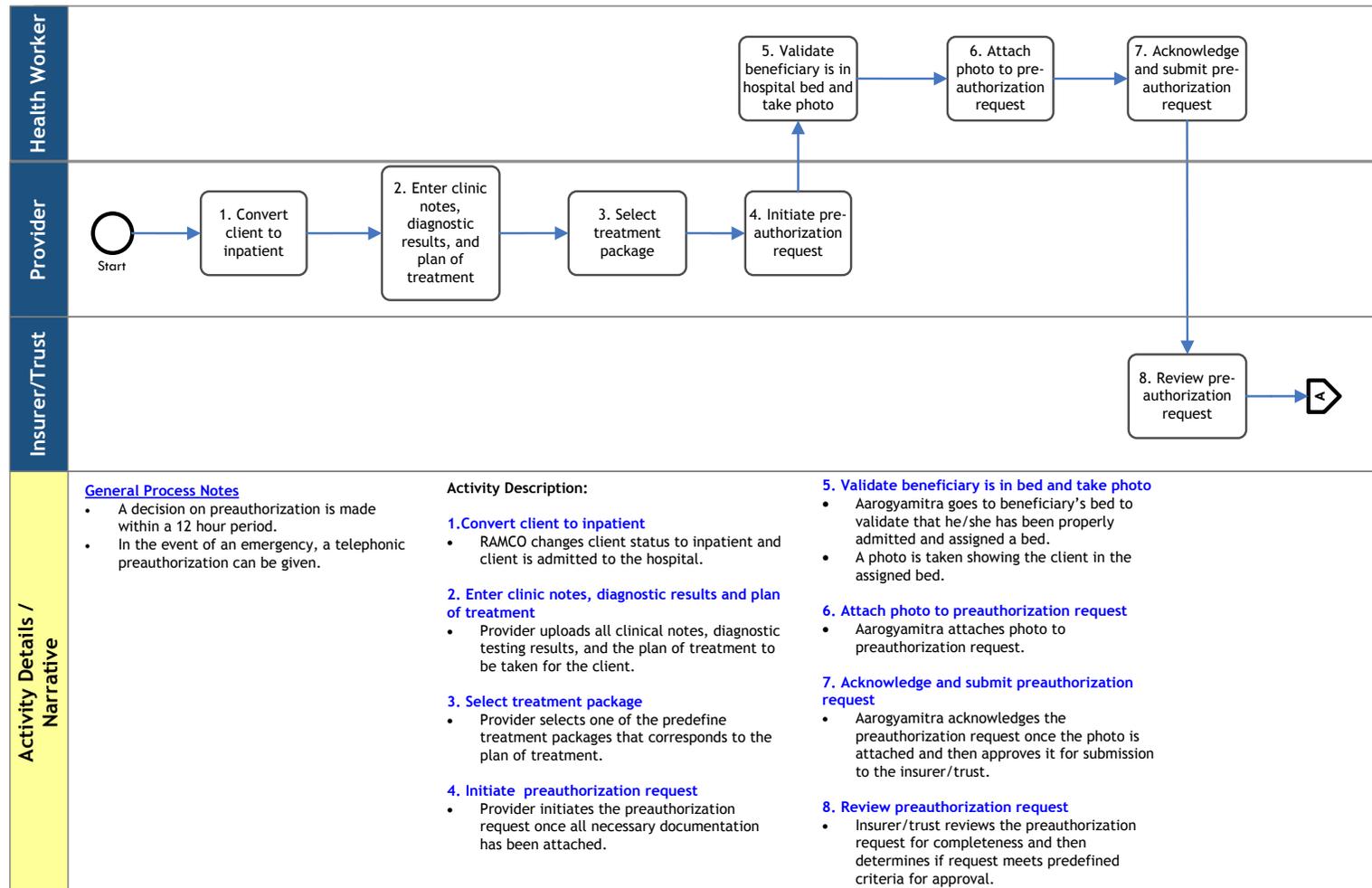
**Eligibility (India - Rajiv Aarogyasri)**

2 of 2



**Pre-Authorization (India - Rajiv Aarogyasri)**

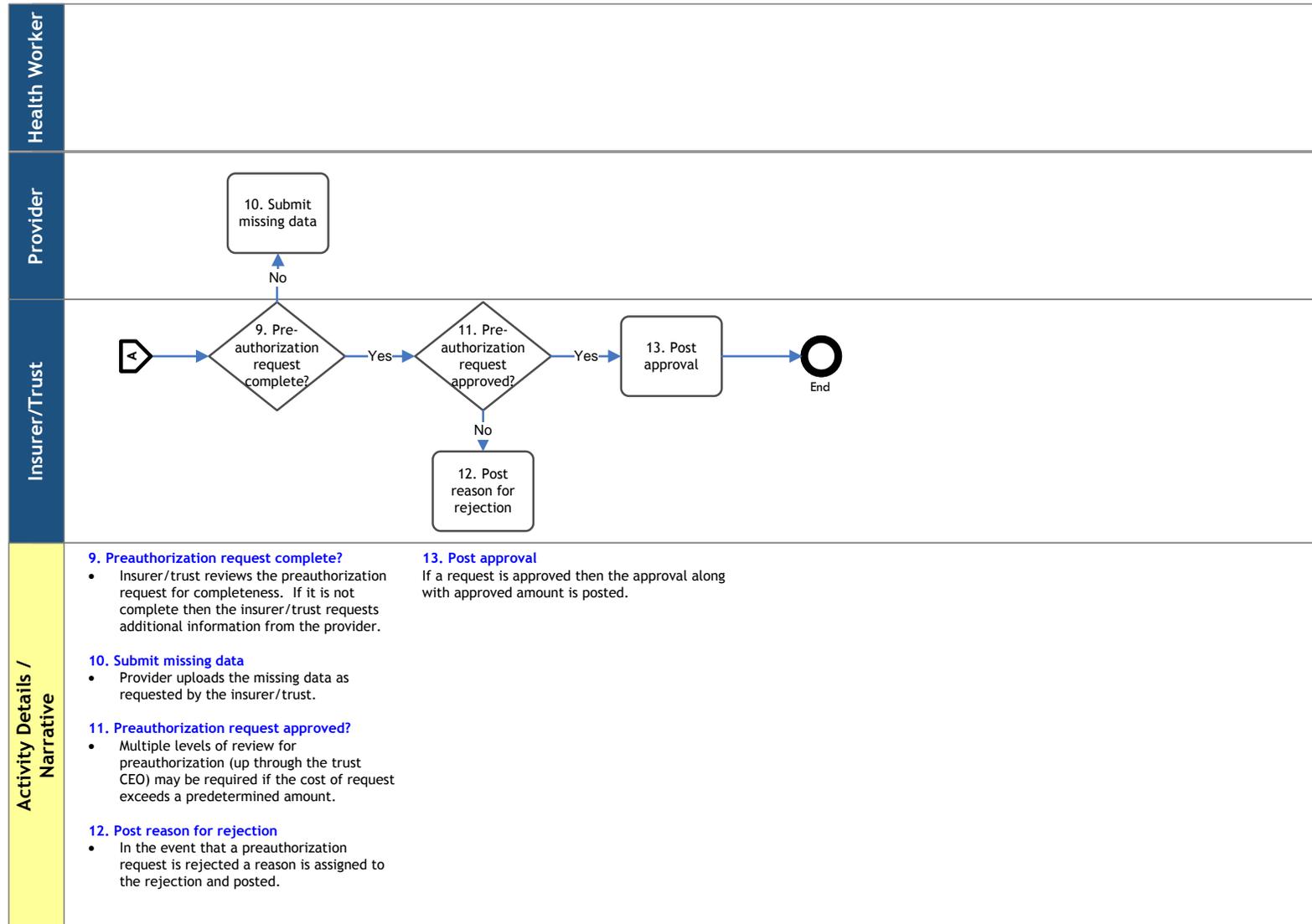
1 of 2



DRAFT Version 09/21/2011

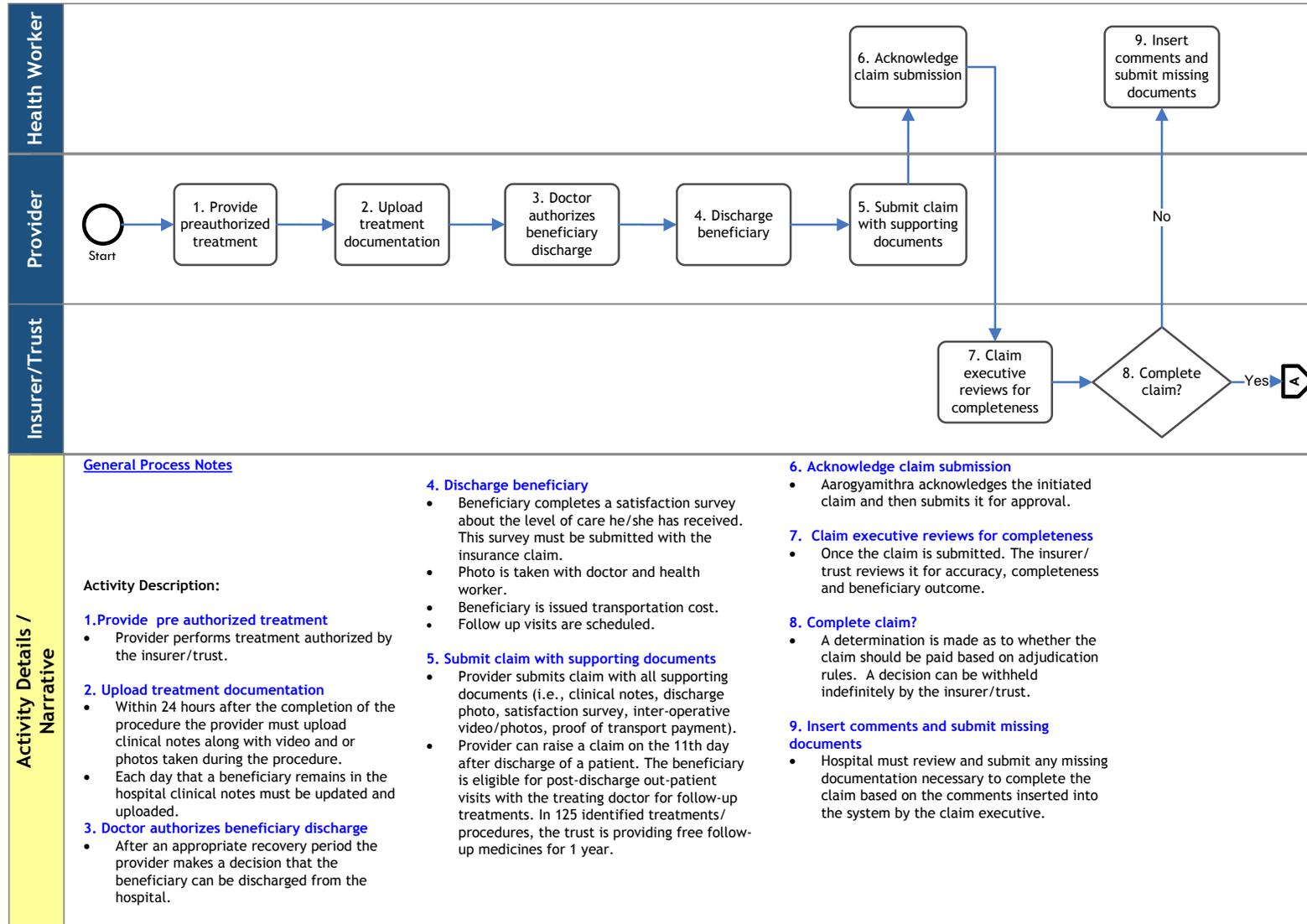
**Pre-Authorization (India - Rajiv Aarogyasri)**

2 of 2



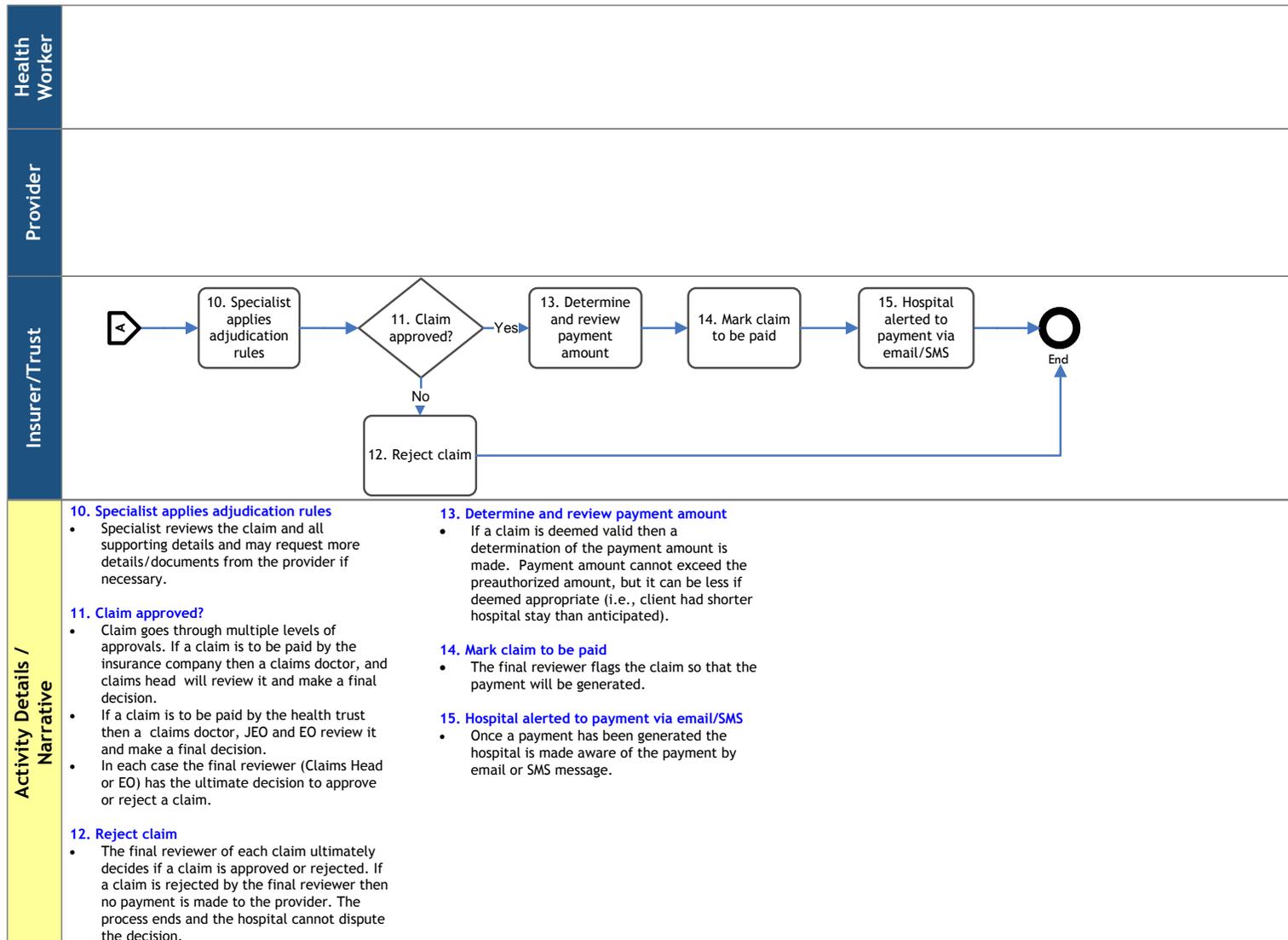
**Claims Processing (India - Rajiv Aarogyasri)**

1 of 2



**Claims Processing (India - Rajiv Aarogyasri)**

2 of 2



## Appendix D: Glossary of business process and systems engineering terms

<b>activity</b>	A generic term for the work that is performed in the business process. The types of activities are tasks and sub processes.
<b>automating</b>	Attempting to reduce an existing manual job to a set of computer programs that can replace the existing manual effort with the minimum of human effort or understanding.
<b>best practice</b>	A technique or methodology that, through experience and research, has shown to reliably lead to a desired result.
<b>business practice</b>	Habitual or customary actions or acts in which an organization engages. Also used in the plural to describe a set of business operations that are routinely followed.
<b>business process</b>	A set of related work tasks designed to produce a specific desired programmatic (business) result. The process involve multiple parties internal or external to the organization and frequently cuts across organization boundaries.
<b>business process analysis</b>	The effort to understand an organization and its purpose while identifying the activities, participants and information flows that enable the organization to do its work. The output of the business process analysis phase is a model of the business processes consisting of a set of diagrams and textual descriptions to be used for design or redesign of business processes.
<b>business process redesign</b>	The effort to improve the performance of an organization's business processes and increase customer satisfaction. Business process redesign seeks to restructure tasks and workflow to be more effective and more efficient.
<b>business rules</b>	A set of statements that define or constrain some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior of the health agency (business).
<b>context</b>	Organizational groupings or entities involved in the business process and how they relate to one another to achieve the goals and objectives of the process.
<b>critical task</b>	An action or set of actions that adds an identifiable value to a given business process objective.
<b>customer</b>	Groups or individuals who have a business relationship with the organization—those who receive and use or are directly affected by the services of the organization. Customers include direct recipients of treatment and services, internal customers who provide services and resources for final recipients and other organizations and entities that interact with an LHD to provide treatment and services.

## Determining Common Requirements for National Health Insurance Information Systems

<b>entity</b>	A person or a group of people who performs one or more tasks involved in a process. The entities are the participants in the process. Entities are represented by circles in context diagrams.
<b>framework</b>	A defined support structure in which other components can be organized and developed. A logical structure for classifying and organizing complex information. A system of rules, ideas or principles that provides a unified view of the needs and functionality of a particular service.
<b>goal</b>	The major health goal that the business process supports. The goal is the end state to be achieved by the work of the health agency and should be defined in terms of the benefits provided to the community/population or individual/client.
<b>information system</b>	A tool that supports work.
<b>input(s)</b>	Information received by the business process from external sources. Inputs are not generated within the process.
<b>logical design</b>	Logical design describes textually and graphically how an information system must be structured to support the requirements. Logical design is the final step in the process prior to physical design, and the products provide guidelines from which the programmer can work.
<b>objective</b>	A concrete statement describing what the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and understand how the process is performing towards achieving the specific objective. A well-worded objective will be SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time-bound).
<b>operation</b>	A task series that completes a transaction.
<b>outcome</b>	The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, decrease in incidents, etc.). An outcome can be, but is not necessarily, an output of the process.
<b>output(s)</b>	Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.
<b>result</b>	A task output that may be used in one of three ways: (a) as an input to the next sequential step, (b) as an input to a downstream step within a task series; or (c) as the achievement of an organizational objective.
<b>requirements</b>	The specific things the information system must do to make the process efficient and achieve its purpose.
<b>requirements definition</b>	The purpose of requirements definition is to refine our understanding of the workflow and then to define database outputs needed to support that work. Requirements definition serves to specifically define the functionality to be supported. In addition, the physical constraints are examined, and the specific project scope determined. Requirements

## Determining Common Requirements for National Health Insurance Information Systems

definition answers the question: “How would you see information systems supporting Task X?”

<b>requirements development methodology</b>	A logical, step-wise approach to think through the tasks that are performed to meet the specific public health objectives (analyze business processes), rethink the tasks to increase effectiveness and efficiency (redesign business processes), and describe what the information system must do to support those tasks (define system requirements).
<b>stakeholder</b>	A person, group, or business unit that has a share or an interest in a particular activity or set of activities.
<b>subprocess</b>	A process that is included within another business process.
<b>task</b>	A definable piece of “work” that can be done at one time; i.e., what happens between the “in-box” and the “out-box” on someone’s desk. A business process is made up of a series of work tasks.
<b>task flow diagram</b>	Graphical description of tasks showing inputs, processes, and results for each step that makes up a task.
<b>transaction</b>	Information exchanges between entities. May also be the exchange of goods (e.g., a vaccine or payment) or services (e.g., an inspection) between two entities. Transactions are represented by arrows in context diagrams.
<b>trigger</b>	Event, action, or state that initiates the first course of action in a business process. A trigger may also be an input, but not necessarily so.

## Appendix E. User and system requirements

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	REQUIREMENT (The system must or should...)	COMMENTS
1	General Characteristics	Provide a stable and highly available environment	
2	General Characteristics	Provide a user friendly interface that is consistent throughout the system	
3	Data Capture	Accept data from multiple input methods including: paper, online web forms, PC asynchronously, PC synchronously	
4	Data Capture	Enter the value desired directly or from a drop down table of valid values through standard mouse selection procedure	
5	Data Capture	Require mandatory fields to be filled before the user can exit the screen	
6	Data Capture	Support real time data entry auditing quality control	
7	Data Capture	Support real time data entry feedback preventing data entry errors from being recorded	
8	Data Capture	Provide appropriate calculations at time of data entry	
9	Data Capture	Log transactions at time of data entry	
10	Data Capture	Maintain transaction log history	
11	Data Capture	Provide asynchronous and synchronous data synchronization	
12	Integration	Ability to exchange data with other approved systems	
13	Security	allow for secure data encryption	
14	Security	Support definitions of unlimited roles and assigned levels of access, viewing, entry, editing and auditing	
15	Security	Require each user to authenticate by role before gaining access to system	
16	Security	Provide flexible password control to align to national policy and standard operating procedure	
17	Security	Create and maintain individual user specific security tables containing user ID and password information that is accessed only by administrator level security	
18	Security	Restrict user password revisions and force users to change their passwords at determined intervals	
19	Security	Terminate log-on screen after determined number of unsuccessful tries by a user to log in	
20	Security	Automatically log off idle workstations after a predetermined period of time	
21	Security	Prevent a user from being logged on to multiple workstations at the same time	
22	Security	Create an audit trail of who, when, where and what functions were accessed by a specified user	
23	Security	Create rights and privilege groups by type of user	
24	Security	Create unique user rights based on functions and screen displays	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	REQUIREMENT (The system must or should...)	COMMENTS
25	Security	Control which users have the right to update specified data sets and track the data updated	
26	Security	Store data centrally in a physically secure location	
27	System Administration	Allow administrator(s) to maintain treatment plan master	
28	System Administration	Allow system administration by local staff	
29	Technical Design	Ability to choose data entry devices and form factors	
30	Technical Design	Ability to access the system at all levels/stores	
31	Technical Design	Software development life cycle should be well described and documented	
32	System Access and Navigation	Access any allowed function from any workstation on the system	
33	System Access and Navigation	Access various screens through the use of menus and appropriate icons on various screens	
34	System Access and Navigation	Move easily from one screen to another utilizing screen appropriate icons or function keys	
35	Miscellaneous	Generate unique record number(s)	
36	Miscellaneous	Enable flexible search criteria for accessing transactions	
37	Miscellaneous	Support multiple languages	
38	Miscellaneous	Display content in language designated by user	
39	Miscellaneous	Display retrieved data in language specified by user	
40	Miscellaneous	Enable a test environment separate from operational applications	
41	Miscellaneous	synchronize central repository in a timely manner	
42	Miscellaneous	operate in online or offline mode	
43	Miscellaneous	transmit updated data fields to central database	
44	Miscellaneous	synch data fields with central database at designated frequency	
45	Miscellaneous	request user to review and confirm entered data field prior to submitting updates to central database	
46	Miscellaneous	display error messages on screen	
47	Miscellaneous	ability to search other insurance scheme enrollment databases	
48	Miscellaneous	operate and store records in online and offline mode	
49	Miscellaneous	Prompt administrator for back up and/or timed archiving	

NHIS

Draft Common Requirements  
Business Process

9/27/2011

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	REQUIREMENT (The system must or should...)	COMMENTS
50	Privacy	Adhere to national and local privacy policies	
51	Reliability	Allow eligibility inquiry system to be available 99.9% of the time for any 24 hour period	
52	Reliability	Provide query response time within designated tolerances	
53	Recovery	System must be made available within a designated timeframe (e.g., 15 minutes) in the event of a system failure	
54	Recovery	Must be restored to its condition of no more than 1 hour before corruption or system failure occurred	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
1	ENROLLMENT	Validate Identification	allow insurer to input national identification number	
2	ENROLLMENT	Validate Identification	allow insurer to check for valid identification number	
3	ENROLLMENT	Validate Identification	insurer to clearly notice error message if identification number does not match national/state database or list	
4	ENROLLMENT	Validate Identification	allow insurer to search and verify if enrollee is already enrolled in a current benefits plan	
5	ENROLLMENT	Capture Personal Information	allow insurer to search database by name, identification number, etc. to see if beneficiary has existing enrollment record	prevention of duplicate records
6	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture biometric data	
7	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to verify identity based on biometric data	
8	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture or assign unique identification number for beneficiary	
9	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture surname/family name	
10	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture first name	
11	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture additional names for family (e.g., beyond surname)	
12	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture phone number(s)	
13	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture e-mail address	
14	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture occupation	
15	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture employer	
16	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture ethnic group	
17	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture financial information or proxy indicators	
18	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture disability information	
19	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture marital status	
20	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture socio-status or other special status	
21	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture level of education	
22	ENROLLMENT	Capture Personal Identifiable Information	generate time and date stamp for the record of captured personal information	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
23	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture additional insurance coverage	coordination of benefits if covered by multiple schemes
24	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture chronic disease detail	
25	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture maternity status	
26	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to match and import beneficiary personal information from other databases (e.g., disease registries)	
27	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to visibility see error message if minimum number of data elements are not complete	
28	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture unique application number associated with beneficiary record	in the event that data is captured on a paper form and then keyed into the system, System should be able to capture the serialized application number from the paper form
29	ENROLLMENT	Capture Personal Identifiable Information	allow authorized users to review and modify personal information	
30	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to archive in-active records	
31	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture language preference	
32	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to assign member type (e.g., dependent, head of household...)	
33	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to accommodate an enrollee when he/she has only one name (e.g., family surname)	
34	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture biometric data	
35	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture unique identifier(s) for person	
36	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture date of birth and/or age	
37	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture an estimated date of birth	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
38	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture beneficiary photos with specified resolution (e.g., 256K)	
39	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture address and/or GIS data	
40	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to select location hierarchy (e.g., province, village...)	
41	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to select gender	
42	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture personal information for 'X' number of dependents	
43	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to relate dependent personal information to primary member record	
44	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to select beneficiary language preference	
45	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to capture date of enrollment	
46	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to save captured demographic data to the enrollment database	
47	ENROLLMENT	Capture Personal Identifiable Information	perform validation on selected data fields	
48	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to save an incomplete record	
49	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to access and modify saved record	
50	ENROLLMENT	Capture Personal Identifiable Information	allow insurer to clearly notice prompts requesting data entry for more information	
51	ENROLLMENT	Capture Personal Identifiable Information	block continuation of process until the minimum data elements are collected as specified by scheme rules	
52	ENROLLMENT	Compare Personal Identifiable Information to eligibility rules	systemically compare personal information to eligibility rules to determine eligibility	
53	ENROLLMENT	Compare Personal Identifiable Information to eligibility rules	allow insurer to easily define and modify eligibility rules	
54	ENROLLMENT	Compare Personal Identifiable Information to eligibility rules	allow insurer to visibly see the eligibility decision	
55	ENROLLMENT	Compare Personal Identifiable Information to eligibility rules	automatically assign eligibility status indicator to record (e.g., eligible, ineligible, pending review, inactive, retracted, suspended...)	
56	ENROLLMENT	Compare Personal Identifiable Information to eligibility rules	allow insurer to manually override eligibility status indicator	
57	ENROLLMENT	Compare Personal Identifiable Information to eligibility rules	allow insurer to visibly see the plans for which a beneficiary is eligible	
58	ENROLLMENT	Compare Personal Identifiable Information to eligibility rules	allow insurer to visibly see if more information is required to make eligibility decision	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
59	ENROLLMENT	Assign Benefit Plan	allow insurer to visibly see all records requiring manual intervention (e.g., need to select from multiple plans)	
60	ENROLLMENT	Assign Benefit Plan	automatically update eligibility status based on define criteria (e.g., change in age, maternal status, benefits plan expiration date...)	
61	ENROLLMENT	Assign Benefit Plan	automatically assign appropriate benefits plan based on eligibility defined rules	
62	ENROLLMENT	Assign Benefit Plan	allow insurer to capture assign date of benefit plan activation and expiration	
63	ENROLLMENT	Assign Benefit Plan	allow insurer to assign provider (PCP) to beneficiary	Rostering process
64	ENROLLMENT	Assign Benefit Plan	allow insurer to select a benefits plan for a beneficiary	
65	ENROLLMENT	Authorize Enrollment	allow authorized person to authenticate identity of beneficiary	
66	ENROLLMENT	Authorize Enrollment	capture name and ID number of authorized person that authenticated beneficiary	
67	ENROLLMENT	Authorize Enrollment	allow insurer to verify premium is collected prior to issuing proof of coverage	Collect premium process
68	ENROLLMENT	Authorize Enrollment	allow insurer to automatically or manually approve an enrollee for benefits	
69	ENROLLMENT	Authorize Enrollment	allow insurer to generate enrollment report for review by administrator (applications can be approved/denied)	
70	ENROLLMENT	Provide Proof of Coverage	allow authorized users to display benefit coverage details	
71	ENROLLMENT	Provide Proof of Coverage	allow authorized users to generate print out of proof of coverage	
72	ENROLLMENT	Provide Proof of Coverage	allow insurer to upload benefits detail to a portable device (e.g., smartcard, usb drive...)	
73	ENROLLMENT	Report Enrollment Data	allow insurer to upload new enrollment information to central repository	
74	ENROLLMENT	Report Enrollment Data	allow insurer to generate reports based on specified criteria	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
1	ELIGIBILITY	Search insurance coverage	allow provider to search for beneficiary's coverage detail with alternate identifier (e.g., name, DOB...)	
2	ELIGIBILITY	Search insurance coverage	allow provider to visibly see prompt for alternate identification method if ID presented is not valid	
3	ELIGIBILITY	Capture coverage detail	allow provider to capture identification detail	
4	ELIGIBILITY	Capture coverage detail	allow provider to capture proof of coverage detail	
5	ELIGIBILITY	Capture coverage detail	allow provider to capture biometric detail	
6	ELIGIBILITY	Capture coverage detail	allow provider to capture treatment referral details	
7	ELIGIBILITY	Confirm coverage	allow provider to validate identification including biometrics	
9	ELIGIBILITY	Confirm coverage	inform provider of benefits plan assigned to the beneficiary	
10	ELIGIBILITY	Confirm coverage	inform provider of beneficiary eligibility status	
12	ELIGIBILITY	Confirm coverage	inform provider of the beneficiary's benefits plan detail	
13	ELIGIBILITY	Confirm coverage	allow provider to receive evidence of eligibility response from insurer	
15	ELIGIBILITY	Confirm coverage	Prompt provider with location information for beneficiary to seek care (alternate locations)	
16	ELIGIBILITY	Confirm coverage	ability to capture and view prior pre-authorization detail	
17	ELIGIBILITY	Confirm coverage	allow insurer to store eligibility transaction specifics log for a specific length of time.	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
1	PRE-AUTHORIZATION	Gather needed info for approval	Inform provider of clinical guidelines or desired protocol for a diagnosis	
2	PRE-AUTHORIZATION	Gather needed info for approval	Identify the requirements for service authorization (business policy visible to provider and/or insured)	
3	PRE-AUTHORIZATION	Gather needed info for approval	Capture demographic data	
4	PRE-AUTHORIZATION	Gather needed info for approval	Link unique ID to admission	
5	PRE-AUTHORIZATION	Gather needed info for approval	allow provider to capture patient historical diseases	
6	PRE-AUTHORIZATION	Gather needed info for approval	allow insurer to create a list of beneficiaries available to the provider	
7	PRE-AUTHORIZATION	Gather needed info for approval	Inform/notify provider that proposed treatment requires pre-authorization	
8	PRE-AUTHORIZATION	Gather needed info for approval	display enrollment and eligibility information as part of submission	
9	PRE-AUTHORIZATION	Gather needed info for approval	should allow provider to enter diagnostic test results	
10	PRE-AUTHORIZATION	Gather needed info for approval	allow provider to enter clinical notes and appropriate patient history	
11	PRE-AUTHORIZATION	Gather needed info for approval	allow provider to select or enter initial medical diagnosis	
12	PRE-AUTHORIZATION	Gather needed info for approval	allow provider to capture and store file attachments	
13	PRE-AUTHORIZATION	Gather needed info for approval	allow provider to view prior pre-authorization services of the individual in order to know if certain limited services have been performed for the individual (e.g., is there quota left for the individual)	
14	PRE-AUTHORIZATION	Gather needed info for approval	allow provider to select a treatment package	
15	PRE-AUTHORIZATION	Gather needed info for approval	allow provider to check their facility quota for specific services that have been arranged for the facility before the provider submits pre-authorization for another patient.	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
16	PRE-AUTHORIZATION	Submit to insurer	provide ability to check preauthorization form for veracity and minimum required fields are completed	
17	PRE-AUTHORIZATION	Submit to insurer	allow provider to modify pre-authorization request prior to submission	
18	PRE-AUTHORIZATION	Submit to insurer	allow submitter to visibly see prompts for missing data	
19	PRE-AUTHORIZATION	Submit to insurer	allow assignment of a case number for each preauthorization request	
20	PRE-AUTHORIZATION	Submit to insurer	must assign date and time stamp to a submitted preauthorization forms	
21	PRE-AUTHORIZATION	Submit to insurer	allow submitter to save pre-authorization request if not yet ready to submit	
22	PRE-AUTHORIZATION	Submit to insurer	allow provider to easily locate and modify saved pre-authorization request	
23	PRE-AUTHORIZATION	Submit to insurer	allow insurer to view the submitted preauthorization request	
24	PRE-AUTHORIZATION	Approve	display a dashboard of all pre-authorization requests in process	
25	PRE-AUTHORIZATION	Approve	allow insurer to designate a predefined list of authorized treatments	
26	PRE-AUTHORIZATION	Approve	allow insurer to set payment rate for each treatment package	
27	PRE-AUTHORIZATION	Approve	allow insurer to modify treatment packages and payment rates	
28	PRE-AUTHORIZATION	Approve	allow insurer to create a decision tree for authorization based on policy	
29	PRE-AUTHORIZATION	Approve	allow insurer to approve/deny/override pre-authorization request	
30	PRE-AUTHORIZATION	Approve	allow insurer to store information associated with authorization	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
31	PRE-AUTHORIZATION	Approve	allow insurer to provide approval/disapproval number and associate with member/provider	
32	PRE-AUTHORIZATION	Approve	allow insurer to receive information required for authorization (phone/fax, etc.)	
33	PRE-AUTHORIZATION	Approve	allow insurer to create approval associated with appropriate info services/\$s/units, etc., and associate with member or provider	
34	PRE-AUTHORIZATION	Approve	allow update of accounting module with projected liabilities from approved pre-authorizations	
35	PRE-AUTHORIZATION	Approve	allow provider to visibly see pre-authorization status	
36	PRE-AUTHORIZATION	Approve	allow insurer to visibly see full history of claims and preauthorization requests for a beneficiary	
37	PRE-AUTHORIZATION	Approve	allow insurer to check account balance or insurance limits for a beneficiary	
38	PRE-AUTHORIZATION	Approve	allow insurer to set multiple levels of approvals for a preauthorization request	
39	PRE-AUTHORIZATION	Approve	allow insurer to visibly see prompt for preauthorization decision to be made from insurer within a predetermined time period (link with dashboard)	
40	PRE-AUTHORIZATION	Approve	allow insurer to provide telephonic override approval	
41	PRE-AUTHORIZATION	Approve	allow insurer to select reason code for rejection	
42	PRE-AUTHORIZATION	Approve	allow insurer to designate a list of rejection codes and explanations	
43	PRE-AUTHORIZATION	Approve	allow insurer to add/modify/update/delete rejection codes and explanations	
44	PRE-AUTHORIZATION	Approve	prompt insurer that pre-auth request is waiting	

Draft Pre-authorization Requirements  
Business Process

NHIS

09/27/2011

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
45	PRE-AUTHORIZATION	Approve	prompt insurer if decision has not been made within time limits set by business rules	
46	PRE-AUTHORIZATION	Provider receives decision	allow insurer to submit pre-authorization decision to provider	
47	PRE-AUTHORIZATION	Provider receives decision	allow provider to visibly see approval or rejection for a pre-authorization request	
48	PRE-AUTHORIZATION	Provider receives decision	allow provider and insurer to communicate on package pricing negotiations	
49	PRE-AUTHORIZATION	Provider receives decision	allow provider and to visibly see amount approved for preauthorization	
50	PRE-AUTHORIZATION	Provider receives decision	allow provider to see services approved	
51	PRE-AUTHORIZATION	Provider receives decision	allow provider to display/view detail each type of pre-authorization and information needed (pre-condition/post-condition)	
52	PRE-AUTHORIZATION	Provider receives decision	allow provider to follow up decision of their pre-authorization submission	
53	PRE-AUTHORIZATION	Provider receives decision	allow provider to appeal the "denied" pre-authorization and update/submit more information for re-approval	

# Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
1	CLAIMS PROCESSING	Generate Claim	System should capture patient identification and encounter information (e.g., date of service, time of service, provider ID, preauthorization number, provider type, location, type of service, diagnosis, procedure, Patient ID, pharmaceuticals, Co-payment, Hospital #, ICD codes, DRG grouper, treatment package number)	
2	CLAIMS PROCESSING	Generate Claim	allow provider to upload supporting documentation (e.g., photos, videos, diagnostic test results...)	
3	CLAIMS PROCESSING	Generate Claim	allow provider to match pre-authorization approval to a claim	
4	CLAIMS PROCESSING	Generate Claim	allow provider to save a claim in process before it is submitted	
5	CLAIMS PROCESSING	Generate Claim	allow provider to easily locate and modify saved claims	
6	CLAIMS PROCESSING	Generate Claim	allow provider access saved claim and modify claim until it is submitted	
7	CLAIMS PROCESSING	Generate Claim	allow provider to view a submitted claim	
8	CLAIMS PROCESSING	Generate Claim	allow provider to create claims by extracting key information from the provider's medical record system	
9	CLAIMS PROCESSING	Generate Claim	allow insurer to upload, scan and/or manually input paper claims	
10	CLAIMS PROCESSING	Generate Claim	allow provider to link claim to hospital admission number	
11	CLAIMS PROCESSING	Claim Data Complete	validate data field entry for reasonableness	
12	CLAIMS PROCESSING	Claim Data Complete	allow provider to visibly see errors and prompts for additional information	
13	CLAIMS PROCESSING	Claim Data Complete	Validate for correct data field entry	
14	CLAIMS PROCESSING	Update Claim Data	allow provider to visibly see that claim cannot be submitted until errors are corrected	
15	CLAIMS PROCESSING	Update Claim Data	allow provider to visibly see prompts for correction of errors	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
16	CLAIMS PROCESSING	Update Claim Data	allow provider to access auto fill functionality for designated fields (e.g., provider number, date, hospital number, etc.)	
17	CLAIMS PROCESSING	Update Claim Data	allow provider to make overrides to auto fill populated fields	
18	CLAIMS PROCESSING	Submit Claim	allow insurer to capture time and date stamp at point of claims submission	
19	CLAIMS PROCESSING	Submit Claim	allow insurer to easily track manually, scanned and or uploaded claims	
20	CLAIMS PROCESSING	Submit Claim	allow provider to resubmit a rejected claim	
21	CLAIMS PROCESSING	Submit Claim	allow tracking of multiple submission of the same claim	"versioning" of resubmitted claim
22	CLAIMS PROCESSING	Submit Claim	allow individual or batch claim submission	
23	CLAIMS PROCESSING	Submit Claim	allow provider to submit claims when all error validations have been met	
24	CLAIMS PROCESSING	Submit Claim	allow provider to submit claims directly to insurer	
25	CLAIMS PROCESSING	Submit Claim	allow provider to release claims when certain criteria has been met (e.g., time or number of claims)	
26	CLAIMS PROCESSING	Submit Claim	allow provider to submit claims for out of region beneficiaries (e.g., insurer for beneficiary is in one region but received care in another region)	
27	CLAIMS PROCESSING	Submit Claim	allow insurer to send acknowledgement of receipt of batch or individual claim with time/date stamp	
28	CLAIMS PROCESSING	Submit Claim	allow insurer to notify provider of successful transmission and return key batch information	
29	CLAIMS PROCESSING	Aggregate and Batch Claim	assign claim and/or batch number to submitted claims	
30	CLAIMS PROCESSING	Aggregate and Batch Claim	allow provider to visibly see claim/and or batch numbers for submitted claims	
31	CLAIMS PROCESSING	Aggregate and Batch Claim	allow insurer to set claim batch scheduling	

Draft Claims Processing Requirements  
Business Process

NHIS

09/27/2011

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
32	CLAIMS PROCESSING	Aggregate and Batch Claim	allow insurer to aggregate claims before claims batching begins	
33	CLAIMS PROCESSING	Claim data validation	allow insurer to perform basic data validation checks on submitted claims	
34	CLAIMS PROCESSING	Claim data validation	allow for insurer to examine that all claim documents have been submitted	
35	CLAIMS PROCESSING	Claim data validation	allow for insurer to flag missing supporting claim documentation	
36	CLAIMS PROCESSING	Claim data validation	allow insurer to visibly see when claims do not meet the basic validation checks	
37	CLAIMS PROCESSING	Generate Errors and Send to	allow provider to visibly see errors generated from submitted claims	
38	CLAIMS PROCESSING	Update Claim and Resubmit	allow provider to view claim flagged due to missing or incomplete information	
39	CLAIMS PROCESSING	Update Claim and Resubmit	allow provider to modify claim flagged due to missing or incomplete	
40	CLAIMS PROCESSING	Update Claim and Resubmit	allow provider to submit modified claim	
41	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to view adjudication rules in non technical language	
42	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to easily deactivate, modify and/or reinstate adjudication rules	
43	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to assign validity dates to adjudication rules (e.g., applicable for a specific year)	
44	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to override adjudication rules	
45	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to easily follow results of automated rules (follow rules to understand why a claim was rejected or approved and how claims payment amount was calculated) track results of each adjudication rule for each claim	
46	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to integrate the use of historical claims within the adjudication rules	
47	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to automatically and manually assign a claims status indicator to a claim (e.g., approved, pending review, rejected)	

Draft Claims Processing Requirements  
Business Process

NHHS

09/27/2011

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
48	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to automatically route claims with a particular status indicator to designated role	
49	CLAIMS PROCESSING	Apply Adjudication Rules	delink patient and personal data from name for privacy purposes during adjudication	
50	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to check if drugs used in submitted claim are within clinical guidelines for the benefits plan	
51	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to link multiple claims as one episode of care (e.g., beneficiary may have to receive multiple chemo treatments as per clinical guidelines and it is paid as one total package price)	
52	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to compare claims to benefit plan rules	
53	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to automate claim logic checks (e.g., man cannot be pregnant)	
54	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to manually re-code a claim (reclassification)	
55	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to set rules that determine claims payment when beneficiary has multiple scheme coverage (e.g., coordination of benefits)	
56	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to mark claims for review and approval by designated user	
57	CLAIMS PROCESSING	Apply Adjudication Rules	allow insurer to log all manual and system changes for each claim	
58	CLAIMS PROCESSING	Apply Adjudication Rules	store details of all adjudicated claims in a data repository	
59	CLAIMS PROCESSING	Determine Claim Amount	allow insurer to apply pricing rules based on service rendered and provider contract	
60	CLAIMS PROCESSING	Determine Claim Amount	allow insurer to manually enter a price for a claim	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
61	CLAIMS PROCESSING	Determine Claim Amount	allow insurer to determine cost of final payment based on benefit plan	
62	CLAIMS PROCESSING	Determine Claim Amount	update beneficiary benefit plan accumulators with claim amount	
63	CLAIMS PROCESSING	Determine Claim Amount	update provider accumulators with claim amount procedure count (e.g., provider # of a particular treatment may be capped)	
64	CLAIMS PROCESSING	Determine Claim Amount	allow insurer to designate claim payment amount for beneficiary and/or provider	
65	CLAIMS PROCESSING	Determine Claim Amount	allow insurer to generate payment data for import to other applications (e.g., accounting system)	
66	CLAIMS PROCESSING	Claim Approved	allow insurer to set multiple levels of review and approval for designated users	
67	CLAIMS PROCESSING	Investigate Claim	allow tracking of audit result	
68	CLAIMS PROCESSING	Investigate Claim	allow insurer to send communication to beneficiary to confirm that claimed services were rendered	
69	CLAIMS PROCESSING	Investigate Claim	allow insurer to receive communication from beneficiary confirming claimed services were rendered	
70	CLAIMS PROCESSING	Mark Claim to be paid	allow insurer to mark a claim to be paid	
71	CLAIMS PROCESSING	Mark Claim to be paid	allow a specific currency amount for a beneficiary to be reserved	
72	CLAIMS PROCESSING	Mark Claim to be paid	allow insurer to prompt billing system for payment difference	
73	CLAIMS PROCESSING	Mark Claim to be paid	allow insurer to remove reserve of a specific currency amount for a beneficiary	
74	CLAIMS PROCESSING	Reject and Apply Reason Code	allow insurer to track reason for rejection of historical claims for a beneficiary	

## Determining Common Requirements for National Health Insurance Information Systems

ID	BUSINESS PROCESS	ACTIVITY	REQUIREMENT (The system must or should...)	COMMENTS
75	CLAIMS PROCESSING	Reject and Assign Reason Code	allow insurer to assign one or multiple codes to a rejected claim based on adjudication rules that were violated	
76	CLAIMS PROCESSING	Reject and Assign Reason Code	allow insurer to create designated rejection codes and explanations	
77	CLAIMS PROCESSING	Reject and Assign Reason Code	allow insurer to modify designated rejection codes and explanations	
78	CLAIMS PROCESSING	Reject and Assign Reason Code	allow insurer to manually reject a claim and assign a reason code	
79	CLAIMS PROCESSING	Generate Claim Statement	allow insurer to generate statement for client, provider and or other appropriate authority	statement to include amount covered and remaining balances available for benefit plan period