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Indonesia Health Sector Review



Health Management Information System: Why Harmonization is needed

Different stages for standardization, harmonization and cooperation among Indonesia's health insurance schemes are discussed including:

1. The creation of a common set of standards called the "Health Data Dictionary"
2. The sharing of a common network to facilitate ease of transport of information to all schemes
3. The adoption of a third-party administrator who would process, at arms-length, for all schemes
4. The pros and cons of consolidating the current schemes into a single universal health payer

Introduction¹

One of the key enablers of a modern health insurance scheme is automation of the scheme's core business processes – membership and rostering, claims processing and provider payments, fund management, and utilization and quality management. Without sufficient automation, health insurance schemes can be plagued with inequities, inefficiencies, delays in payments and are open to fraud and abuse.

It is fair to say that Health insurance Information systems are among the most complex, intricate and costly information systems to be found anywhere. Unlike most health management information systems today, health insurance information systems usually cannot be bought "off the shelf" since the 'rules' and particular requirements of health insurance processing tend to be unique and vary widely from country to country.

As Indonesia strives to attain Universal Coverage for all Indonesians, as mandated by its “Law 40” legislation, a key decision to be made will be how to harmonize its existing schemes – including Jamkesmas for the poor and near-poor, Askes for civil servants, Jamsostek for those employed in the formal sector, and other public schemes including the district health schemes.

This Discussion Note attempts to outline some viable stages for harmonization of the existing schemes. It looks at one specific aspect of that harmonization – that is how to make the operation of all the schemes more efficient by sharing standards, and possibly sharing some elements of networks and information infrastructure as well. Harmonization and sharing would surely lead to more effective program administration as well as a reduction in administrative costs and quite possibly service costs.

Main Challenges

If we look around us, we see banks sharing common networks, airlines harmonizing schedules, Internet companies building common infrastructure to support a plethora of applications, mobile phone companies allowing handing-off of calls from one network to the other... Unfortunately the world’s health sectors have largely been absent from this “*coopetition*” (cooperation + competition²) movement, and have not embraced automation as fully as they might and are thus missing the efficiency and productivity which other industries have enjoyed.

Left alone, each scheme naturally evolves its own rules, its own standards, its own claim form, its own dialog with providers, its own communication methods to beneficiaries. Because of the resulting lack of standardization, providers (who must often deal with multiple health insurance schemes since their patients are covered under different schemes) are highly burdened and often complain about this unnecessary workload burden. Also beneficiaries who migrate from one scheme to another (e.g. civil service to formal sector or v.v.) may find a completely unfamiliar environment as well. All this adds up to, at a minimum, additional costs and frustrations. Cooperation, if it is to succeed, however needs to be encouraged from the top leadership of the schemes and from those who govern them.

Finally, the costs of designing, building, operating, maintaining and upgrading the needed health insurance information systems for the payers are large. These systems often take 3-5 years (or more) to design and build, cost at least 50 billion Rupiah (~US\$5 million) or more to build, and require a highly skilled technical capacity to maintain and upgrade.

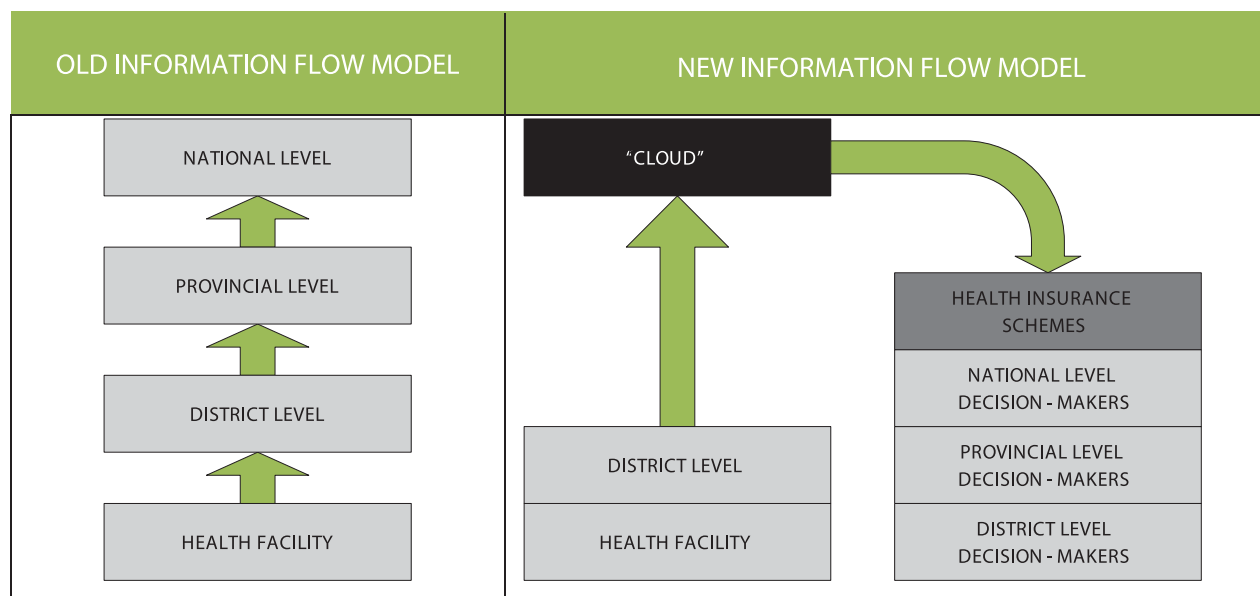
This challenging environment thus seems to suggest that a strategy which encourages cooperation among the various schemes, and the sharing of some of these costs would be an advantage to all the schemes, the MOH and the Government of Indonesia (GoI). It would also be an important benefit to providers and beneficiaries, who often find themselves dealing with the vagaries and variations within multiple schemes.

Critical Timing of this Discussion

As Indonesia continues its transition to universal health insurance coverage under the aegis of Law 40, this time period marks a critical potential turning point in the evolution of its health insurance schemes in Indonesia. Large numbers of new beneficiaries will soon flood the system as Universal Coverage is implemented. This additional load and complexity could overwhelm the current fragmented nature of Jamkesmas’ systems today. The claims payment procedures are split between Askes and the MoH³ which does not encourage a single holistic, efficient Jamkesmas HMIS. Changes (enlargement) of the benefit plans and rules for reimbursement (provider payment methods) will likely also become more complex⁴.

It is also a pivotal time in the history of information technology, as computer literacy becomes more widespread, Internet and mobile networks become ubiquitous and as the populace’s expectations of efficiency and streamlining grow.

Finally, the existing information systems in place at the major schemes are largely undeveloped, and some schemes are now facing the prospect of large investments in health insurance information systems construction. Before the final decision is made for each scheme to “build its own” systems, it is essential to look at the stages of harmonization which present themselves for the schemes as a whole.



Decentralized Decision-Making with Centralized Information Flows: The Best of Both Worlds?

Indonesia has the world’s fourth largest population on this planet and is spread across a huge archipelago of islands and cultures. Local control and local decision-making (at the provincial level and district level) characterize the nation. Local control allows decision-makers to fine tune the use of their resources to best meet the needs of their local communities.

The application of harmonized technology need not in any way detract from Indonesia’s wish to devolve control of certain aspects of the health system. **In fact, by having better and more sophisticated information systems in place it enables better decision-making at the local levels while at the same time enabling more effective coordinated inter-governmental decision-making!** Without good, timely, accurate, and complete information no informed decisions can be made which maximize local and inter-governmental impacts.

Before the Internet and before modern technology (using mainly paper), the only way to collect health information was to aggregate that information and

send it upward from facility to district to province to the national level. Along the way information was typically mishandled, sometimes manipulated and almost always delayed. Since it was aggregated, no in-depth analysis (“data mining”⁵) was possible later.

The world has now changed and with our amazing connectivity it is possible to send data from a facility (or the district level if the facility is too hard to reach) directly to a “cloud”⁶ which then makes the data available to all levels, in various formats, for decision-making with appropriate security and confidentiality safeguards.

This way, the health insurance scheme gathers claims (and the other transactions needed for its core business processes) in a direct way. Where claims come on paper, they can be scanned and made electronic at the District (or other) Level and then passed to the scheme for processing.

As a byproduct, decision-makers at the District and Provincial levels, armed with information gleaned largely from the claims flows, can monitor trends, plan for new clinical venues and services and communicate its plan for improving health services to its populace. It would now have more timely and accurate information upon which to do these tasks.

Technical Stages of Harmonization for Implementing Health Insurance Information Systems

Presented below are a number of technical stages for consideration. They range from minor (but important) interventions to improve standardization and harmonization with multiple schemes operating under a single set of national standards, to the merging of the schemes' operations into one universal payer. Please note, with each successive stage it is assumed that the earlier stages have been adopted. Thus, if one were to choose stage 3 it assumes stages 1 and 2 are also adopted.

Stage 1: Creating a National 'Health Data Dictionary' for all Schemes and for the Health Sector of Indonesia

A national Health Data Dictionary [HDD] has become the basis of harmonization of insurance schemes around the world⁷. The Dictionary provides a "common" definition of the language of health insurance throughout the country's health sector.

Creating a Health Data Dictionary is not an easy task, and, frankly, one which is never completed⁸. The key is to define those areas which are immediately needed, and continue to develop the Dictionary as time goes on. Putting the Dictionary online for all stakeholders to see "the latest version" is a good idea. Also it is key for the leadership to endorse this work, and mandate it for use throughout the health sector of the country, including in the private health sector whenever appropriate.

Stage 2: Building a Common Health Insurance Network: the Claims Clearinghouse

One of the largest administrative costs of health insurance is the transmittal and acknowledgement of claims sent by providers (on paper or electronically). As a result, some countries with multiple payers⁹ have built "claims clearinghouses" which receive claims bound for many schemes and then redirect them to the appropriate place/system for processing.

These become especially important as electronic claims processing begins to be considered. Consider this tangle of electronic interconnections on the left. A clearinghouse can streamline the interconnections considerably (see diagram on the right):

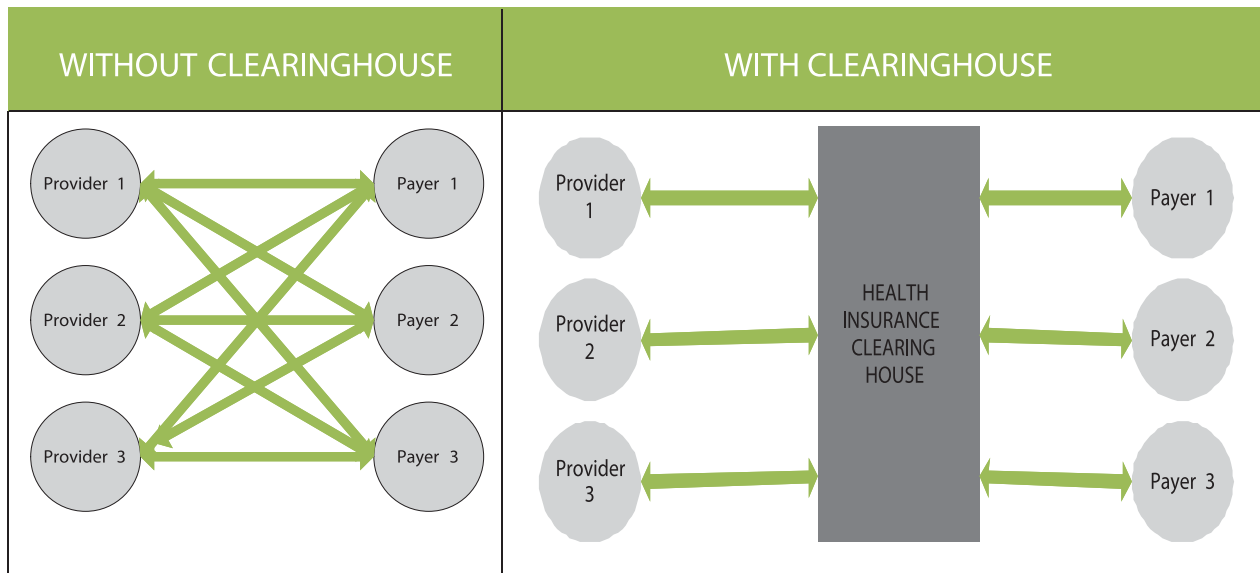
This streamlining of the submission process benefits both payer and provider. A provider can now send "all" its claims to a single point. A payer (scheme) can likewise gather all its claims from the same single point. In addition, the "single point" can also serve as a convenient way to perform a number of other transactions such as eligibility checking and the pre-authorization of some high-cost procedures.

Stage 3: Sharing a Claims Processing Platform: the "TPA" Model

It is possible to design a single health insurance information system which could be used to process the claims of multiple schemes, each at arms-length from each other, and each under its own administration. This is often referred to as the "third-party administrator model" or TPA for short. In this way each scheme offloads some of its processing responsibility to a trusted third-party whose expertise is the technical and operational aspects of health insurance processing¹⁰ while the scheme, through its associated fund, continues to bear risk and continues to have final say over how claims are paid.

Implementation details are crucial to a TPA's success. Deciding who "owns" the TPA (sometimes creating a public-private partnership as the legal entity) and how the TPA is governed are crucial decisions. The entity could be governed by a joint Board of participating schemes to assure that priorities are set properly and that each scheme's requirements are met. The Chairman of this Board could rotate among participants on a regular basis, or it could be chaired by the Minister of Health.

In a country the size and topology of Indonesia one could imagine the TPA running multiple processing centers, each hosting a copy of a "national health insurance database" and each able to load-balance as demands and transaction volumes change from center



A Health Data Dictionary contains these elements:

HEALTH DATA DICTIONARY COMPONENTS	
1. COMMON PATIENT IDENTIFIER	By adopting a unique identifier, beneficiaries can be tracked as they move from one health scheme to another, and patients from one health facility to another.
2. COMMON CODING SYSTEMS	All schemes could adopt the same coding systems to identify diseases (ICD-9-CM or ICD-10), procedures (ICD-10 plus some extensions such as CPT-4?), DRGs, pharmaceuticals ¹¹ , laboratory examinations and normal values, doctors, medical specialties, facilities, localities(postal codes?), as well as many other minor codes. (Perhaps 100 such coding tables are required.)
3. COMMON FORMS	All schemes could adopt an Indonesian Health Insurance Claim Form. This would dramatically improve the efficiency of providers who must submit claims forms to multiple schemes. A common version of the paper claim form could be designed as well as its electronic counterpart to aid in the submission of electronic claims forms ¹² .
4. COMMON DEFINITIONS OF TERMS	Examples: bed-occupancy and length-of-stay, infection rate, number of surgeries ¹³ ... Having common definitions of such terms could improve the conformability and comparability of data analysis.
5. COMMON FORMATS	Examples: How will names be encoded? How will addresses be encoded? How will dates be encoded and displayed?...
6. OTHER POSSIBLE COMPONENTS	An "HDD" can be a vehicle for collating additional standards in a number of areas. For example, the "HDD" can be a convenient place to combine/share Clinical Guidelines and Protocols [CPGs] aimed at reducing variation in clinical practice and set quality standards.

to center. The ideal number of such centers cannot be calculated at this time, although the number probably would be in the range of 3-5 such centers, housed on the major islands (not necessarily in the major population centers) and serving a large catchment area surrounding it. The existing “district schemes” could be directed to act as “service offices” for local contact to the customers, while the processing center does not necessarily need public access.

This would provide a **decentralized** platform with **centralized, harmonized** information standards. If one center failed, the others could take its load. This also provides the highest degree of security, since each center can be thought of as a “hot” backup to the others¹⁴ should one center fail for any reason.

The TPA model is in widespread use around the world in countries with multiple insurance payers. Two examples: The model is used widely in Germany where one TPA can administer many funds. It is also in widespread use in the Kingdom of Saudi Arabia where one TPA can administer many (private) insurance schemes.

Stage 4: Implementing a the “Single Universal Payer”

The most dramatic change in health insurance administration would involve the creation of a single, universal payer with overall responsibility for the administration of public and social health insurance in the country. It would manage all health funds – from multiple sources including possibly some/all district funds, and it would process claims for all beneficiaries.

The desirability of this stage of harmonization is hotly debated today around the world. Clearly there are some advantages – shared administration costs, shared technical costs, higher capacity since it could afford more health insurance experts to be created “under one roof”¹⁵. The disadvantages of such an approach are also well known – this approach tends to limit “competition” since one administrator is responsible

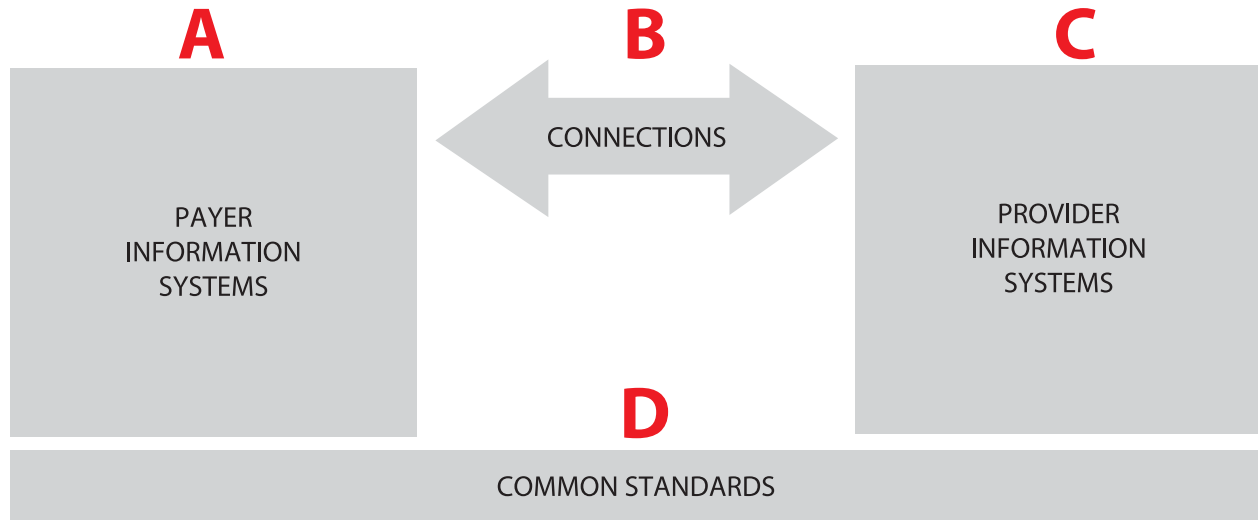
for all Funds, and some argue that its monopoly powers can tend to stifle innovation in the health sector, leading in the long run to higher healthcare delivery costs. The suitability of this stage in the Indonesian context is at the center of the current health policy debate, and while its resolution is far from clear, it is presented here for consideration since examples in the world have clearly shown this model to be highly

effective in some countries¹⁶. Clearly this stage of harmonization, if chosen by the Government of Indonesia, would be the most significant change to current policy, and thus would require significant political dialog and policy decisions before implementation.

HMIS engines for single universal payers are the most complex and the most costly to build. For this reason, the “single payer” might very well employ more than one Health Insurance Information System in order to complete its work. It might funnel claims to different TPA’s (based perhaps on the claim’s complexity, or the region from which it comes¹⁷) while retaining some claims for in-house processing and scrutiny. Thus, the adaptation of a “single universal payer” might not fundamentally change the technical stages of harmonization available to accomplish the processing of claims (and other core business functions) for the unified payer.



THE LARGER HEALTH INSURANCE SYSTEMS ENVIRONMENT



The Bigger “HMIS PICTURE”

While this paper has focused on the issues surrounding further computerization of the health insurance schemes (see “A” in the diagram below), one must not forget that on the other end “of the insurance pipe” are the providers (especially hospitals, “B” in the diagram below) who also benefit enormously from computerization (with Hospital Information Systems) and being connected to the health insurance network (“C”) to allow easy eligibility checking and submission of claims. We continue to stress the importance of having Common Standards (“D” in the diagram) so that these systems can “talk to one another”. If this electronic connection were to exist, the benefits to all stakeholders would be considerable including improvements in transparency and simplified processes for beneficiaries¹⁸.

Conclusion

Four possible stages for beginning the operational harmonization of certain aspects regarding health insurance information of the health insurance schemes in Indonesia have been discussed. The stages vary from limited interventions aimed at standardizing the current operational mechanisms to those which introduce increasingly more harmonization to the status-quo. While it cannot be assumed that this represents an exhaustive list, it does represent, in broad brush, those initial stages which might be applicable to the discussion over how best to leverage information systems in the implementation of Universal Health Insurance Coverage in the Republic of Indonesia. Harmonization and standardization of this nation’s health insurance schemes is clearly an involved topic with serious technical, organizational, financial and political implications. Further discussion of all aspects is needed and welcomed.

- 1 This note was produced as part of the World Bank inputs to the Gol Health Sector Review and Health System Performance Assessment. This note was written by Dennis Streveler (Senior HMIS Consultant) for the Jakarta-based Health Team (Claudia Rokx, Puti Marzoeki, Pandu Harimurti and Eko Pambudi) with Expert Advice from George Schieber (Senior Health Policy Advisor).
- 2 This contrived English word was “invented” in Silicon Valley USA some years ago. In a struggle for dominance between the then major technology firms, IBM and Microsoft, both firms found there were areas where they could work together which would benefit them both. Thus, despite continuing to be highly competitive in most of the areas of technology, they did found certain common projects and created standards for common technology platforms which we might say have contributed to Silicon Valley’s success.
- 3 Many of these same issues also apply to the need for coordination with Jamsostek and Askes during the transition to universal coverage as well.
- 4 Many countries’ health insurance schemes implement a variety of provider payment methods, a so-called ‘hybrid’ method, which might include DRG’s (diagnosis-related groups) for hospitals, capitation for primary care physicians and clinics, fee-for-service for the high medical specialties. Contracting at different rates in different localities (where the cost-of-living might vary dramatically) is often common practice, which thus requires the need for a rather sophisticated “fee schedule” and pricing methods.
- 5 “Data mining” is a relatively new technology which allows a researcher to “drill down” to individual cases and, if needed, to go back to the medical record of a particular case to study it in more detail. It also allows for detail descriptive analysis of individual variables which were not “thrown away” during an aggregation process. This technology has become practical as electronic storage prices have plummeted in recent years.
- 6 “Cloud computing” is one of the latest terms in computing. Data are gathered and stored independent of “place” (“somewhere in the clouds”). So it is not so important who actually is collecting the data as long as it is processed correctly and securely.
- 7 The query “health data dictionary” to any Internet search engine will reply with links to many of the world’s best examples of national health data dictionaries. Among the best known examples are those from Australia, New Zealand and Canada.
- 8 The creation, dissemination, update and enforcement of standards is of course an on-going and iterative process. The HDD will change as policy decisions are made, as new provider payment methods are adopted, and as more “inter-connectivity” of modules becomes desirable. For example, Canada has now spent almost 40 years adding to, and perfecting, its national health data dictionary.
- 9 An example of a shared health insurance network can be found in Morocco, where claims for the two public payers are channeled through a common network called Damancom (www.damancom.ma). Currently the Kingdom of Saudi Arabia is building a claims clearinghouse hosted by its Cooperative Council of Health Insurance. In the USA, certain large private firms have built clearinghouses to help sort out the intertwined flow of claims in that multi-payer environment. The largest of these firms may be Emdeon (www.emdeon.com), a WebMD subsidiary, which now manages connections to more than 1,200 distinct payers.
- 10 An international coding standard for “drugs” remains elusive. Thus creating a drug coding system for Indonesia is a challenge as it is in every country.
- 11 Moving to electronic submission of claims forms can reduce the processing costs dramatically!
See: Streveler, D., Linking Payers and Providers (Chap 5) in Langenbrunner, J., (ed.), Designing and Implementing Health Care Provider Payment Systems, World Bank Press, 2009.
- 12 Number of Surgeries is a good example of a statistic which would seem to be simple, but it is not – if a patient has two procedures done within the same surgical session is that “two” surgeries or “one”? What about bilateral procedures...?
- 13 It is often remarked, in justification of the TPA model, that information technology and claims processing are not “core competencies” of health insurance concerns and therefore better left to a third-party who can focus on those aspects of health insurance operations.
- 14 This is how Google manages its queries. It has multiple centers (in the USA, Europe, Singapore and Australia). The user has no idea (nor does she care) where each query is processed as long as the results are routed back quickly and accurately!
- 15 An example of this approach in the ASEAN region is the Philippines (90 million population spread across 7,000 islands), where PhilHealth is the single universal payer for that country. It administers insurance funds from a variety of sources.
- 16 The outsourcing of some/most/all of the core business processes of health insurance schemes is a common practice today in many parts of the world especially among private payers, who are often more sensitive to the need for administrative efficiency than of some public schemes. For example, of the Kingdom of Saudi Arabia’s 26 major private health insurance payers, as many as 8 of them share a common Third Party Administrator. In the USA, the public payer called Medicare (mostly serving retiree beneficiaries) does its claim processing using “Medicare intermediaries” retaining only the oversight and post-audit functions within the government sector.
- 17 In the USA, the processing of claims for the elderly (“Medicare”) is done by a series of regional “intermediaries” who essentially perform the functions of a TPA for that governmental payer in a region while also processing claims for other governmental and private payers as well.
- 18 Beneficiaries would perceive a more streamlined, easy to access insurance system, and eventually could access information about their insurance coverage, navigate among providers more easily and also begin to manage their own health information. These more advanced applications, often referred to as “eHealth”, since they are made possible as citizenry has more access to the Internet and communications prices for typical individuals falls. Many countries today have significant eHealth plans. An example is the Dubai Health Authority with its HEALTHe DUBAI initiatives. Over time all countries will benefit from such health consumer involvement.

For more information please contact Claudia Rokx (crokx@worldbank.org) or visit the WB website.