Section / Reference	Questions for Consultation	Philips Healthcare Consultation Notes/Feedback
Introduction and background	1.7.1 Please refer to section 1.6.3. The Telemedicine Guidelines were issued by The Board of Governors of the Medical Council of India (MCI) in March 2020. Stakeholders are requested to go through them and suggest changes to the policy, if any, to ensure adoption of telemedicine and e-pharmacy	N. A.

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Creating an open network for digital health services	2.4.1 As a stakeholder in the health ecosystem, what benefits and risks do you see if an open network approach to digital health services is implemented? Please respond with details.	Proactive messaging: A few indicative scenarios on how an open and connected ecosystem can improve healthcare delivery. We have a lot of seasonality in ailments, diseases. E.g.: Dengue & malaria around monsoons. Those HSPs in close proximity of the consumer could trigger these 'issued in the interest of public safety' messages. Similarly enabling discovery mechanisms to National Disease registries say National cancer registries which is a repository for diagnosis and treatment of rare form of cancers via UHI will open up second level innovations for building care pathways by HSPs. This will also be an added benefit to the HSPs accessing a similar prior case done by specialists in a different part of country. Risks: It is important to clearly lay out the workflows/interactions that will be enabled by the UHI ecosystem for any of the targeted services to ensure seamless interoperability. Some of use-cases like real-time scheduling / appointment bookings as mentioned in the paper need to be thought out bit more. Scheduling is a problem today even in one hospital via apps. Scaling access to such services in a national scale in an interoperable way requires significant thought and enabling infrastructure. As health service delivery now can transcend state boundaries, taxation and subsidy distribution (particularly state level) laws may need to be relooked at. For e.g. if a patient is benefiting from a state sponsored insurance scheme, can the scheme pay for services delivered from other state healthcare providers? Also to consider is the need to have an effective audit trail for such cross border transactions. UHI attempts to create an interoperable and standardized model by which healthcare services can be discovered and accessed. However, standardizing or creating an interoperable model for pricing, payment and delivery of services may prove to be challenging. For e.g. interoperable teleconsult service can work only if both the patient and provider

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Creating an Open Network for Services in NDHM	3.8.1 The primary stakeholders in the UHI ecosystem are mentioned in section 3.3. While the list is more indicative than exhaustive, are there any other primary or secondary stakeholders that should be considered while building the interface? If yes, please outline their role in the UHI ecosystem.	Other stakeholders having a key influence are: insurance/payers/intermediaries (TPAs), care givers (operating on behalf of a patient), health workers. An important service category would be that of data analytics & AI-powered insights. These curated services could be offered to all stakeholders incl. policy makers. UHI may enable discovery mechanisms to such services . Such services will also need Data in which case UHI may enable access to Health data upon appropriate definition of Data usuage purposes by these curated services. Beyond the technology infrastructure/platform/framework, UHI also needs to address how protocols for data exchange / interoperability with stringent security & privacy protocols (e.g. via consent, de-identification etc. Clear Delineation of Roles & responsibilities between TSP & HSP in scenarios when both are same ? There needs to be safeguards against any misuse of roles and permissions. Example : Larger Tertiary Hospitals (say Like Tata memorial Cancer Hospital may have an IT development Team of their own and may use cutting edge research to develop an Oncology care platform which could be used by other players in the ecosystem/ Say an hospital X white labeling an App developed by an IT vendor)
	3.8.2 The proposed objectives of UHI and UHI Network have been detailed in sector 3.4. Please share your comments on the comprehensiveness of these objectives, methods to ensure these objectives are adhered to. Please comment if there are other objectives which must be included in section 3.4.	Will UHI provide a common payment infrastructure that can also automatically apportion the payment for a health service across all participating entities? Will UHI be linked with UPI - to leverage its (UPIs) proven, resilient financial strength? Could these also be linked to JanDhan accounts and use the same channel for payments / reimbursements?

Section / Reference	Questions for Consultation	Philips Healthcare Consultation Notes/Feedback
	3.8.3 UHI will support a range of digital health services and is expected to evolve with time. How should the digital health services be phased in the upcoming versions of UHI?	We would recommend the below phasing in digital health services (keeping in mind, building blocks of a longitudinal patient record, cost / reimbursement implications, feasibility of implementation, adoption and scale of operations): 1.To start with, it may help to introduce services that are consumed as discrete instances (e.g. OPD consultation, prescriptions & medication dispensing and Booking Ambulance services) with specific focus on service and price discovery. 2.Enable better integration with the payer (insurance) infrastructure (for e.g. generation of service records enabling claim settlements) 3. Diagnostic Services (helps reduce re-investigations, delayed care delivery and costs) Radiology Images and Reports , Lab Reports

Section / Reference	Questions for Consultation	Philips Healthcare Consultation Notes/Feedback
Ecosystem adoption	4.3.1 Have all incentives / disincentives for various stakeholders to participate been covered in chapter 4? If not, please provide the list and mention the role and description of the stakeholder.	Existing players in health services (Aggregators, HSPs, TSPs..) have already invested in infrastructure and systems to deliver their services. Movement to an open UHI ecosystem should offer benefits far beyond the cost they may have to incur - to incentivize them to adopt UHI. Smaller HSPs (e.g. GPs) may still depend on specific aggregators to publicize their services - negating the benefits of UHI (towards expanding their reach). Health services aggregators may be supporting multiple pricing models that bundle different care services (lab, teleconsult..). How would discovery of such services be facilitated via UHI? For e.g. an EU may be searching for teleconsult but may result in purchasing a care package when they visit the aggregator's portal directly. The UHI service data exchange model should enable discovery of such bundle pricing options as well – rather than just a service specific pricing. Overall, the move should be towards 'value-based' care. First we categorize service providers, for instance a tertiary care center + location. E.g.: An Apollo Hospital in New Delhi could be a Type 1, whereas a Primary Health Center in Spiti Valley, Himachal Pradesh could be at the other (constrained) end of the spectrum, say Type 4. The incentives or penalties could be based on different adoption levels across the above types of providers).
	4.3.2 For the disincentives mentioned in chapter 4 and the ones provided as an answer to the question above, please provide details on possible mitigating measures that may be taken to minimize the impact of said disincentives.	In the first iteration, let UHI support service discovery as a primary model, enabling EUs to navigate to the HSP portal for further engagement Also, offer a common search engine/app that can be consumed by all EUs for this basic discovery functions. Interoperability of services for financial transactions, data exchange etc. could be the next iteration as that may impact current infrastructure/procedures within HSP.

Section / Reference	Questions for Consultation	Philips Healthcare Consultation Notes/Feedback
	5.3.1 In the proposed discovery model in section 5.1.3.1, EUAs are expected to present all responses returned by the Gateway to the user and allow the user to choose the HSP. Should any alternate models be allowed? If yes, provide details.	EUAs can add value by offering more intelligent recommendations to the end users. (Just like travel aggregator sites do). Say while booking a consultation preference of female Pregnant Patient taken into account to suggest Female gynecologists in the locality or say language preferences of an elderly patient or an Ex serviceman looking for doctors - showing retried army specialists in the locality. UHI can mandate that EUAs always have an option to list all responses but may, with user consent provide recommendations. UHI infrastructure should enable querying for services based on different filters (e.g. location/specialty/availability..) The query and response model defined in the consultation paper can also be complemented with a pub-sub model to enable delivery of real-time updates on service availability/pricing information. This can also enable EUAs to offer a much better end user experience. HSPs should also be provided an opportunity to better pitch their services as part of the discovery flow – for e.g. diagnostic centers may want to project the state of art equipment that they have invested in. This can even be through embedded links for “More information”
	5.3.2 Are there any challenges to the proposed approach to pricing of services detailed in section 5.1.3.2? Please suggest other alternate pricing models that must be supported by the Gateway	UHI should enable service providers to offer different pricing options to consumers. E.g.: Bundling of multiple services (or packages) at discount (consult + diagnostics + pharma), health/wellness subscriptions that include teleconsult), loyalty discounts, free of-cost services in a package, reward points, tiered pricing - for new patient, existing patient part of a care plan (e.g. reduced cost for follow up visits), discretionary discounts - doctors/hospitals/labs may offer significant discounts to patients who are at an economic disadvantage).

Section / Reference	Questions for Consultation	Philips Healthcare Consultation Notes/Feedback
UHI In Depth	5.3.3 Are there any other areas that must be supported by the Gateway for service fulfilment in section 5.1.3.3? If yes, provide details.	How will service fulfilment reporting be modeled for long running services (e.g. Non-Communicable Diseases, Chronic Ailments)? Also clear boundaries to be defined say in Scenarios where service non-fulfilment in an emergency situation impacted care-delivery. We need to analyze common workflows for different classes of health services and validate what additional capabilities would be required from UHI. There should be a way to attach service context to a patient context. For example, a cancer patient may register for chemotherapy sessions across multiple hospitals (all visited by his/her oncologist). Each session is booked and paid discretely – but there has to be a way to link all these services to the patients overall care context. For e.g. there may be a need to aggregate all the payment bills for these different sessions to aid reimbursement.
	5.3.4 Post-fulfilment, as described in section 5.1.3.5, covers ratings and grievances. Are there any other areas that must be supported by the Gateway for post service fulfilment in section 5.1.3.5? If yes, provide details.	Build a mechanism to promote good behavior. Allow for bidirectional ratings; where apart from consumers rating providers, providers too must be able to rate consumers. Similar to what few taxi aggregators provide (where drivers can rate passengers). Across multiple episodes, and interactions - rating of consumers can given a stronger negotiation power to the individual; or collective bargaining to the employer (where the consumer works). Also scenarios where post-fulfilment resulted in a medico legal scenarios then appropriate mechanisms to safeguard interests via appropriate Data guardrails and service fulfillment tracebacks to be established.
	5.3.5 The proposed approach for allowing users to share ratings for the HSPs as well as EUAs has been laid out in 5.1.3.5. Please comment on the same and share any other approach that might be adopted.	Ratings need to be transparent, and equitable keeping the citizen in mind. Key metrics should be displayed. E.g.: For an insurance provider - claim settlement ratios & what portions of the claim amount have been paid/remitted should be visible. E.g.: 890 claims out of 1,000 have been settled. And 2.34 Cr. has been paid against a claim of 3.25 Cr. This would need inputs from IRDA and regulatory agencies.

Section / Reference	Questions for Consultation	Philips Healthcare Consultation Notes/Feedback
UHI Development, governance and management	In any open network there will be a cost to development, management and operations of the UHI gateways. The financial model described in Chapter 4 includes a fee for the usage of the UHI gateway. Interested stakeholders are requested to provide models of pricing which could be implemented to maintain the gateway.	Chapter 4 ties in gateway charges to closure of a service transaction. Other alternative models are: Charge participants based on traffic generated through the gateway (e.g. flat monthly fee + usage based fee driven by requests/responses published) UHI Tax for all service providers (EUA/HSP) in the UHI network as a % of revenues/profits from digital services The pricing should also take into account the purpose of the providers (e.g.: For profit, not for profit & the applicable tax treatment to providers) UHI Infrastructure to offer SLAs (Turn-Around-Time, Uptime, Sceurity) that can justify the charges
	6.5.1 What approaches, other than the ones mentioned in chapter 6, should be considered for managing and governing the UHI gateway? Please provide details.	We recommend 2 established and proven sources: 1. Open standardization practices – e.g. from IETF - https://www.ietf.org/standards/process/ 2. Modeling information objects exchanged as part of the services, we can look at FHIR (for e.g.: https://www.hl7.org/fhir/healthcareservice.html)
	6.5.2 What should the UHI Gateway charge in the initial few years of operation? How can this model evolve over time?	The gateway needs to be free of charge to foster adoption (till a large part of the ecosystem is on-boarded, scaled and seamlessly performing transaction). Post which: A couple of criteria would need to be understood, few examples to discuss: 1. What fees are the TSPs expected to shell out while building/creating the application? E.g.: Sandbox exit fees, security certification charges, platform/hosting charges, and other govt. prescribed charges - one-time, recurring? 2. Value & nature of service provided? Depends on the end beneficiaries. 3. INR volume of transactions We should revisit this point once business models start to materialize/evolve.

Section / Reference	Questions for Consultation	Philips Healthcare Consultation Notes/Feedback
	6.5.3 Please share your views on the duration for which NDHM should manage and govern the UHI gateway, and if NDHM should open the path to multiple gateways. Please provide details on the benefits and risks of the options.	N. A.
Others		1. Provision of a searchable directory/registry of qualified UHI services and applications. 2. Clear delineation of functions/responsibilities of the UHI layer against the rest of the NDHM building blocks, clearly articulating what UHI is and what it is not. 3. We recommend evaluating Fast Healthcare Interoperability Resources (HL7 - FHIR) as the standard to represent information (data formats, elements, APIs) about services that will be exchanged via UHI. Relevant FHIR resources include Healthcare Service, Organization, Schedule, Appointment, Invoice etc. A general recommendation would be to consider various workflows related to a service in detail while defining the UHI service models/interfaces for the same as covered earlier. Another important challenge to be assessed is the ability to propagate dynamic/real time availability and scheduling of services. Learnings from industries like Travel could be beneficial.