Designing National Health Stack for Public Health: Role of ICT Based Knowledge Management System

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Agenda

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02	Indian Context	"Designing National	Background, Existing e-Initiatives, Need for NHS		
		Health			
03	<b>Best Practices</b>	Stack for Public Health:	eHealth initiatives Elsewhere ; Newe Practices in India		
04	The Proposed Model	Role of ICT Based KMS"	- The Conceptual Design -Implementation Strategy		
05	Conclusion		- Issues - Way Forward		



### Introduction

Public Health (PH)	<ul> <li>Science of protecting &amp; improving communities' health</li> <li>a multidisciplinary field</li> <li>advocates 'preventive approach to community well being.</li> </ul>
Knowledge Management System (KMS)	<ul> <li>A centralised, multiuser system that encorages collaboration</li> <li>to 'maintain' both explicit &amp; tacit k/w, legacy &amp; present k/w</li> <li>captures, collates,locates, retrieves, mines (for 'hidden' connections too)</li> <li>uses a set of systems (groupware, communication systems, DSS, content mgmt, document mgmt, AI, simulation, data warehousing</li> </ul>
Stack	<ul> <li>A common repository of components (infrastructure, data,)</li> <li>for a common goal</li> <li>collected from multiple agencies/authorities/ stakeholders</li> <li>assessed using APIs</li> </ul>
National Health	•for evidence-based predictive DM to assess resources/situations.
(NHS)	A Nation-wide " One Public Healthcare System" ; predictive



### **eHealth Elsewhere**



Canada, Germany, New Zealand, South Korea, and USA: Best application of KMS observed



# ATLANTA 2019 Existing e-Health Indian Initiatives

			PM J	ΑΥ	
EMR/E	HR	Electronic Medical/ Health Register	Ayushman Bharat Yojna or PM Jan Arogya Yojna - National health insurance (pmjay.gov.in)		
	Mother child tracking system & child health register		ID	SP	Integrated Disease Surveillance
CDSS		Online Clinical DSS Used by radiologists and labs for error-free clinical care	warning system to identify the outbreak of a disease		
ORS		Online Registry System	PI H	RP & MIS	Performance reporting portal & Online Health Statistics Inf portal- collated from PHC shared with
CPOF			block, distt, state level ( nrhm- AINPPR <sup>3.nic.in)</sup>		
ST OL	C : Cli etc	<b>Computerized Physician Order Entry</b> Clinician can directly enter medication etc for secondary / tertiary care			All India N/w Project on Pesticid Residues – in food samples to diagnose food borne diseases



## Indian Context Need for NHS



India has more than a billion people, diverse social, economic, geographical and cultural context.

1.5 billion, 28 states, 9 union territories, 22 languages



SDG3- 143 /188 ( measured on 33 indicators ir a Global Burden of Disease)

Global Healthcare Index 154 /195 (measures death rates for avoidable 32 diseases through proper care)

Several health MIS in India...

- but fragmented
- data generated is "stove piped" into stand alone, heterogeneous databases that wont talk to each other...

... as

non-standardized data collection, varied data formats, incompatible IT systems, And a 'wronged' sense of ownershi

by the agency that collects the data



### **NEED FOR A NHS**



Not just existing eHealth systems/ infn but other related Inf with direct/indirect impact on human health ---such as air, water, soil pollution levels collected by various pollution control boards, inf on animal diseases etc, should also be available to PH authorities.



Need to link diff systems to enable better PHS

Creation of a stack for an integrated, unified approach

#### **Proposed NHS for PH**

- 1) A conceptual framework
- 2) An actionable implementation strategy



# ATLANTA 2019 India : The New eHealth Efforts







## **ITUKALEIDOSCOPE**



## ATLANTA 2019 Proposed Conceptual Model

• The proposed conceptual model- NHS is a multi-layered, multi-stakeholder

Block-1 : To Facilitate inter-sectoral involvement & collaboration of various stakeholders Block - 2 : To Provide an integrated platform that uses appropriate technologies

Block – 3 : To Evolve regulatory n/w and health standards based on the (public) health predictions made by decision making/support bodies



Cont.

### Implementation of the Proposed Model



# ATLANTA 2019 Key Strengths of NHS



#### **ADVOCATES DSS**

Clear identification of service portfolios, KPIs, benchmarks to meet public health goals



#### EVIDENCE BASED DM

ICT Based Models of forecasting and helps in preventive decisions

#### MULTISTAKEHOLDER



#### **CLEAR RoRs**

federated structure of detailing out interrelated services, their process flows and rules governing these services





A synchronized multi stakeholder, multi discip. collaboration shall provide an increased level of citizens' confidence in public health care systems to improve the quality of life (QoL)



#### TECHNOLOGY AGNOSTIC

Clear segregation of service model & ICT layers



# ATLANTA 2019 Issues & Challenges







Atlanta, Georgia, USA



e really 'e'mpowers or it furtheralienates the disempowered?

#### **Digital Divide**

Lack of Ethics (national leaders, designers', manufacturers, agencies)

#### Data+Autocracy=Datocracy

#### Citizens' Concerns

(Equity/ Inclusiveness? Data protection/ privacy/ confidentiality; Co-Creation? )

#### Threat to Privacy

Need new mechanisms to safeguard

#### Lack of Trust Citizen-Centric & not Tech-centric

& for citizen-inclusion-Newer Awareness, K/w & Skills required for co-creation

ATTENTION CURITY EQUIPMENT IN US

YOU ARE BEIN





### ATLANTA 2019 Resistance to Change'

 buy-in' from political authorities & dmakers; CB

Governance

Mandate

**`Outdated Institutional Frameworks'-** need to be 'Flat', 'Flexi', 'open', 'collaborative' thru adoption of DSS

#### **'Policy Decay'-** need proactive, recursive & agile processes, healthy feedbk loops

**`Data Colonization'** – need robust data-protection ecosystem

**Data –Ownership'-** need newer Investment & Partnership Models ; newer SLAs , Contracts, Regulations-Manufacturer's Liabilities & Responsibilities

**`Digital Divide'-** Insistence on focus on SDGs & Ethics - inclusion of social sector data





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