

inhealthcare

an Admin centre	Organisation .	administration	Care facility	Patienti name of NHS number Q Add •	
s ໜ	Unproces	ised alerts	Processed alerts		
					Add new fill
					I Sort alerts
	DENNIS, B	eryl () And	No 397 000 0254		
	1 - Orgent	Created Co	-Nov-2018 10:11	View of Digital Care Home NEWS Monitoring - National Early Warning Score: 13	of View patient
	ADAMSON,	Natalie ()	NHS No. 758 358 5236		
	1 - Urgent	Created 14	Nov-2018 09:53	Digital Care Home NEWS Monitoring - National Early Warning Score: 14	1 View patient
	ANDREWS,	Lydia () //	HS NO. 288 683 1786		
1	2Procesy	Created 08-	Nov-2018 10:05	Digital Care Home NEWS Monitoring - National Early Warning Score 5	View patient
4	DOON, Ben ((Mr) Jans No	175 962 3792	and the states	
	3 - Normal	Created 31-0	Xt-2018 18:00	Digital Care Home NEWS Monitorion - Mino research -	View patient

Digital Care Home Sheffield Test Bed Case Study Philippa Hedley-Takhar NIHR Devices for Dignity Jamie Innes Inhealthcare

NHS England Test Bed Programme – the vision in Sheffield (2015)

"to benefit patients with **multiple long term conditions** by combining and integrating innovative technologies and pioneering service designs, to keep patients well and independent and **avoiding unnecessary hospital attendances**".

- "Combinatorial innovation"
 - Robust evaluation
 - Real world settings
 - Shared learning





Test Bed Vision



Strategic decision support



Test Bed Objectives

1. Develop a **sustainable method** of testing, developing and spreading innovation with health and social care partners in the Sheffield region.

2. Re-design care pathways **bringing together technologies and people** working together in different ways to support integrated and personalised care.

3. Support a **culture of transformation** and improvement in the NHS and other health and care organisations.

4. Support **co-ordinated decision-making** across health and care organisations informed by real-time data and information.



5. Evaluate the combination of new technologies and service re-designs to produce robust and objective results that can be **shared nationally**.



Digital Care Home





Digital Care Home – Design and development

Jamie Innes



Design process





Patients can be monitored via app or online

Online

Арр	■ ≅ * ≥≤ ? ₁1 99% 1 2:59
ঃ ≱া≰া হি ুন[99%∎ 12:58 = Patient	← Task
ADAMSON, Natalie ()	ADAMSON, Natalie () 11-Feb-1935 (84y)
A list of tasks to complete is shown below. Select a task to iew its details and complete it.	When taking the resident's vital sign measurements, wherever possible ensure that the resident is sat up comfortably, is calm, and has not recently undertaken strenuous activity.
Status key	Respiratory rate (breaths/min)
★ Tasks to do ☆ Ad hoc ☑ Draft ⊠Not synced ⊗ Error sk details Status	Answer
Digital Care Home NEWS Monitoring Please complete this task by entering the	Oxygen saturation (%)
resident's vital sign measurements	Answer
Monitoring *	Temperature (°C)
	Answer
	Systolic blood pressure (mmHg)
_	Answer
Features	

- Monitor patients on the move
 - Photo capability
- List of tasks and patients available



		Care Facility	
		Tasks to collect information from residents	
		Date for online inputting 18-May-2016	
		INNES, Jamie (Mr) Date of birth 17-Dec-1988	- 81
		Care Home - Vital Signs - Care worker collection task - 18-May-2016 17:29	
		Blood pressure reading	
		Diastolic BP <i>mmHg</i> (optional) Systolic BP <i>mmHg</i> (optional)	
		Body temperature reading	
		Body temp *C (optional)	
		Body weight reading	
		Body weight <i>kg</i> (optional)	
		Heart rate reading	
		Heart rate //m/n (optional)	
		Create clinical alert	
		If you are aware of anything that has happened to affect this person's appetite, weight change, or use of supplements, please provide	- 10
N3-UAT		You are logged in as CARE, Facility () (jamietest - Care Facility) Change password	Logout
Care facility		inhealth	care
🜲 Tasks 🚺	Unprocessed tasks	Processed tasks	
L Residents	Undernutrition 🕕	Vital signs 1	llection form
	INNES, Jamie (Mr	Date of birth 17-Dec-1988 View task V	/iew patient
	2 - Priority 18-Ma	ay-2016 17:29 Care Home - Vital Signs - Care worker collection task	

Features:

- Print of a list and add patient readings later
- Allows for limited computing resource
 - List of tasks and patients available

The Inhealthcare platform automates the co-ordination of monitoring with care home staff



Patient's GP record

Data from care home residents



The relevant clinical team pick up the reading, review and then action as appropriate. The patient's GP record is also updated.

Digital Care Home NEWS Monito	ring NEWS alert		
The 'Process alert' button will assign the alert to you and	d start the alert consultation process.		
Patient name DENNIS, Beryl () NHS No. 397 000 0254 Severity 1-Urgent Service Digital Care Home NEWS Monitoring Description National Early Warning Score: 13	Created date 08-Nov-2018 10:11 Assigned to Unassigned Respiratory rate 100 breaths/min (score 3) Oxygen saturation 90 % (score 3) Temperature 39 degrees Celsius (score 1) Systolic BP 135 mmHg (score 0) Heart rate 150 BPM (score 3) Consciousness P (score 3)	Systmone one patientone record emis # VISIOD	
Notes			
There are no notes for you to view.		Specificate 4D: Maintenance (Dhe Community Halls Notice) at United Tablets Notiogation Fait Environment - Advert Record Annual Advertises Reverse Rev	- σ
Exit		Image: State	

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Results are visible within care home





Enhancements

- Two way communication between care home and SPA team
- Allow additional information to be capture as part of the NEWS assessment
- Complete observations ad-hoc if needed

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	\equiv Patient	
	ADAMSON, Natalie () 11-Feb-1935 (84y)	
	A list of tasks to complete is shown below. Select a task to view its details and complete it.	
	Status key	
	★ Tasks to do ☆ Ad hoc ☑ Draft ⊠Not synced ⊗ Error	← Task
	Task details Statu	s ADAMSON Natalia ()
	Digital Care Home NEWS Monitoring	11-Feb-1935 (84y)
d	Please complete this task by entering the resident's vital sign measurements	ADDITIONAL INFORMATION
	Digital Care Home NEWS Monitoring Start increased observation period	Notes entered in this box will generate an 'alert' at SPA and the team will be required to contact you in response.
DBSER How of De obse O Eve	VATION FREQUENCY ten would you like the resident to erved? ry 30 minutes	Please only provide information if there is <u>anything that</u> has happened that may have affected this resident's health or the vital sign observations (for example – changes to a medical condition; position when observations taken; hospital admission; or changes to medication).
O Eve	ry hour	
O Eve	ry 2 hours	Otherwise, please do not enter information into this box.
O Eve	ry 3 hours	
O Eve	ry 4 hours	Additional information (optional)
O Eve	ry 5 hours	Enter a note
O Eve	ry 6 hours	
C Eve	ry 12 hours	Please detail the individual who completed the resident's measurements
	care	



Digital Care Home - Evaluation Outcomes & Key Learning

Philippa Hedley-Takhar



Evaluation

- 1. Does the model serve as an 'early warning system' to identify deterioration in residents health and enable an effective response?
- 2. What is the impact on:
- Quality of life Residents
- Emergency Contacts & Admissions
- Workforce?



3. How might a service be **optimally designed** for "adoption and adaption" - for monitoring of residents health and wellbeing across many care homes and other regions?



Evaluation – Early Warning System Outcomes

- Successfully shared data from **133 residents in 10 care homes** to the STH, Frailty Unit, the community nursing support and GP practices.
- > 200 alerts predominantly resolved / supported by SPA and prioritised GP engagement
- Specific case study examples of escalation & collaborative response
- Quantitative evaluation 'not conclusive' in effectiveness in reducing A&E attendance – complex factors
- Often resulted in identifying action that had already been taken (e.g. contact GP) but reinforced clinical judgement & made suggestions re readings & reasons to check again (e.g. cold extremities affecting measurement of blood oxygen saturation)

Evaluation – Emergency Contacts

- When all emergency contact cases considered **decrease in the number of emergency contacts** during the intervention period compared with the baseline period (1 year previously).
- However, when only considering participants who were resident in the care home at start of the baseline period **slight increase in emergency contacts** over the intervention period compared with baseline.
- Often, entry into the care home may be **precipitated by a care episode**, which may involve an emergency contact.
- Therefore, the higher rate of contacts in the baseline period when all cases are considered is possibly connected to the very reason that some participants entered the care home in the first place.
- Due to the lack of comparison group, it is not possible to calculate how many A&E events have been avoided by the monitoring system. However, expert opinion from health professionals suggests that Digital Care Home could prevent adverse events such as falls associated with poor vital signs (e.g. high temperature & low resting blood pressure).



Impacts

Residents Quality of Life

- Some residents wanted to know and liked to know their observations
- Value in the **shared decision making support** of SPA for resident care
- **NEWS baseline & routine monitoring** was felt useful for those with long-term conditions
- Mixed opinion about appropriateness for those who had **palliative or end of life care needs** could be viewed as overly intrusive & lacking in value for these residents.
- Useful for people with **dementia diagnoses** as long as monitoring is done flexibly & according to resident's needs & emotional abilities.



Impacts

Workforce

- More contact which promoted the **assessment of 'soft signs'** e.g. reduced mobility, drowsiness, change of mood or loss of appetite.
- SPA advice was seen as **supportive and reassuring** felt it wasn't changing clinical practice however case study examples demonstrated change to responses & **increase in autonomy** during the intervention
- The activity of taking and inputting readings set up a **routine** however **flexibility of timing and capacity** to respond was often an issue
- More value and engagement where teams were supported to 'trouble-shoot' **technical issues** e.g. Wi-Fi / refresh screen etc.
- Not often aware they could review **trends** in readings over time



Evaluation – Context

Care Home Environment

- More appropriate in **residential** homes than nursing homes?
- More value in homes with 'less robust' **GP relationship**
- **Residents** e.g. mostly well & medically stable, large number of residents with dementia, end of life, palliative
- Infrastructure e.g. Wi-Fi / access to PC
- Staff turnover & leadership

Use of NEWS

- **Objective** information to legitimise observations
- Additional observations (e.g. food and fluids (MUST & BMI score), pain, mobility, choking risk, communication, medication etc.).
- Inclusion of softer signs of deterioration



Evaluation – Opportunities

- **Personalisation** frequency 'as required' or regularly? / 'baseline' for residents
- Sharing data with residents/family useful aid to self-management & possible beneficial reassurance effects.
- Visibility of information emergency care practitioners, GPs & acute care staff etc.
- Integration with care plans care home staff viewing & using residents' monitoring trends over time.
- Importance of engagement (GPs) & training for the teams (clinical handover, digital skills)



"The key to preventing inappropriate emergency hospital presentations for care home residents is regular monitoring, coupled with an understanding of the resident and clear and appropriate <u>advanced care plans</u> that are actionable both during surgery hours and out of hours.

The integration of the Digital Care Home intervention could usefully fit within this model of care."



Thank you for listening

Any Questions?

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