

SWARM: A Regional Health System's Intervention Approach to Addressing COVID-19 Outbreaks in Nursing Homes and Adult Care Homes in Rural Eastern North Carolina

*Pam Cowin,¹ Todd Hickey,¹ Bennett Wall,¹ Jeffrey Shovelin,¹ Michael Waldrum,¹ Debra Thompson¹ and Greg Kearney²
Vidant Health Center,¹ Brody School of Medicine, ECU²*

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Gregory D. Kearney¹, Pamela Cowin², Todd Hickey², Bennett Wall², Jeffrey Shovelin², Michael Waldrum^{1,2}, Debra Thompson²

¹East Carolina University, Brody School of Medicine, United States
²Vidant Health, Greenville, NC, United States

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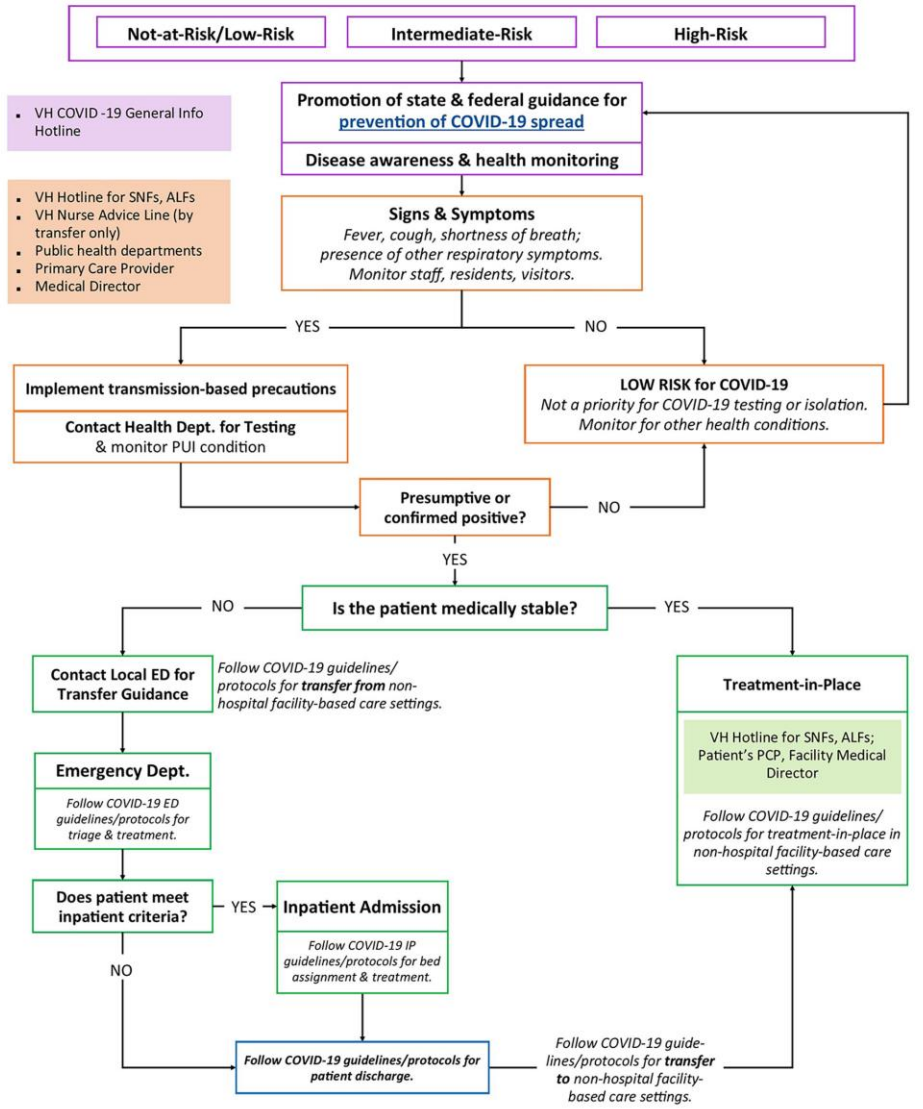
Introduction

- **Background:** Incessant, COVID-19 outbreaks in nursing and adult care homes are a serious concern. Facilities often lack in-house capacity and capability to treat ill patients. Hospitals are strained to balance influx of patients, allocate scarce resources and protect HCWs
- **Purpose:** This project sought to implement a regional, community engaged, intervention model to assist nursing and adult care homes in reducing or preventing outbreaks and risks associated with COVID-19 in rural eastern North Carolina (N.C.)
- **Aim:** Conduct a comparative analysis to measure the differences between number of COVID-19 related cases, deaths and duration (days) of outbreaks in VH SWARM facilities (n=12) and all other non-SWARM facilities (n=155) in eastern NC

Methods

- **Design/Setting:** Collaborations between Vidant Health (VH), health departments and a network of community partners, a shared intervention plan was created and implemented to monitor nursing and adult care homes for COVID-19-related outbreaks across 29 counties in rural eastern N.C.
- **Approach:** A “Strike” team or “Swarm (SWARM)” approach was developed as an operationalized concept for rapidly responding to nursing and adult care home outbreaks while providing an array of services and interventions to help prevent the spread of COVID-19.
- **Data:** Reportable, bi-weekly COVID-19 Nursing Homes and ADC outbreak data obtained from NC Department of Health and Human Services for eastern NC facilities (N=167). Time period May 1 to June 12, 2020. UMCIRB: Exempt
- **Analysis:** The Mann-Whitney U test was used to compare differences between the length of time (number of days) an outbreak occurred. Alpha was 0.05 level; SPSS v24

COVID-19 CARE PATHWAY FRAMEWORK FOR NON-HOSPITAL FACILITY-BASED CARE SETTINGS



PREVENTION →

← **EARLY RECOGNITION**

ACUTE CARE AWARE →

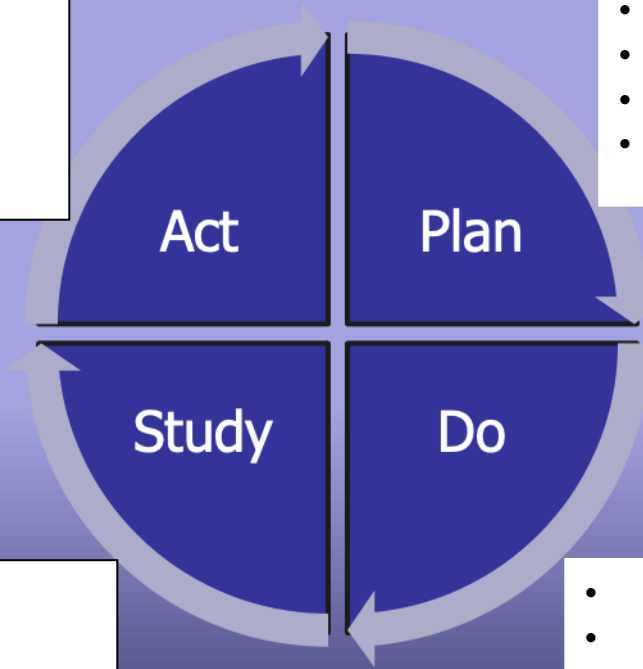
← **FACILITY SUPPORT**

Results

Will a collaborative intervention model reduce or prevent COVID-19 outbreaks and risks in congregate living facilities?

- Share findings with stakeholders
- Identify solutions for challenges
- Leverage drivers of success
- Plan for next cycle

- Identify key stakeholders
- Determine stratification criteria
- Formalize pathway framework
- Leverage existing resources



- Compare findings across facilities
- Feedback from stakeholders
- Key drivers of success
- Unanticipated challenges

- Educate facilities on framework
- Contact facilities daily for status updates
- Execute service agreements
- Share mapping data

Results

- Nursing and adult care homes under service contract using our SWARM approach experienced fewer average number of COVID-19-related resident ill cases (24.4 vs 29.0), and deaths (1.2 vs. 3.9).
- The length of outbreak recovery time was far less among SWARM facilities than non-participating, non-SWARM facilities (17.1 vs. 25.4; $p < .034$).

Table 1. Number of reported COVID-19 cases, deaths and days until recovery among SWARM (service contracted facility) and non-SWARM (non-service contracted facility) nursing and adult care homes (N = 167), North Carolina, 2020

Facilities Reporting an Outbreak	Type of Group Facility						p
	SWARM n (%)			Non-SWARM n (%)			
	12 (7.2)			155 (92.8)			
	n	M	SD	n	M	SD	
Cases (total)	293	24.4	28.4	4527	29.0	35.4	.762
Residents	200	16.7	20.0	3148	20.2	26.0	.904
Staff	93	7.8	8.5	1379	8.8	10.6	.953
Deaths (total)	14	1.2	2.2	624	4.0	6.6	.762
Residents	14	1.2	2.2	621	3.9	6.6	.308
Staff	NR	NR	NR	3	0.0	0.1	.953
Number of Days Until Recovery	205	17.1	14.3	3905	25.4	13.4	.032

Note. NR = None Reported. Cases and deaths are the maximum number reported. Recovery for these study purposes followed NC DHHS, rules and guidelines as follows; a) a COVID-19 outbreak is defined as two or more laboratory-confirmed cases; b) An outbreak is considered when there no evidence of continued transmission within the facility, measured as 28 days after the latest date of onset in a symptomatic person or the latest date of a specimen collection in an asymptomatic person, whichever is later, and c) Facilities with less than 10 residents are not included to protect patient confidentiality.

Conclusion

- By actively monitoring key indicators, engaging in daily communication with local partners and providing rapid response, VH's SWARM approach provides a proactive method for preventing further spread of COVID-19 in adult care facilities and communities.
- Limitations: Complexity of virus transmission makes it difficult with accuracy which SWARM intervention method had most significant impact. Somewhat limited by few facilities; facilities with <10 not included; relatively short study period
- Overarching federal guidance are good, but more granular level, practical approaches suited for rural areas are needed. Consistent education, training needed for admin, HCWs and staff needed