Make.

Work.

Flow.

Better.

OPS FOR HEALTHCARE

Using the Cloud to Improve Infection Control and Antibiotic Stewardship

A white paper

Abstract

A discussion on optimizing the power of the cloud to move from the state of the industry to the state of the art

Executive Summary

Post-acute care providers are seeking ways to simplify infection surveillance, control, and reporting along with related antibiotic stewardship methods to gain access to *meaningful decision data that drives timely improvement*.

Organizational Performance Systems' cloud-based Infection Control System (ICS) – developed in conjunction with award winning administrators and directors of nursing provides a client-tested, HIPAA compliant, and cost-effective solution.

Infections – The Frightful Reality

Approximately 15,000 long term care (LTC) facilities in the United States provide care to an estimated 1.7 million people.[1] They serve patients whose often complex medical needs leave them susceptible to illnesses that can lead to death, and to higher health care costs. [2]

Infection rates among LTC residents nationwide are estimated to be as high as 12 percent, with pneumonia and urinary tract infections being the most common.[3]

More broadly, the Centers for Disease Control and Prevention (CDC) estimate that of the four million people admitted to or residing in nursing homes and skilled nursing facilities each year and the nearly one million who reside in assisted living facilities more than 9 percent – or 380,000 – die because of healthcare-associated infections. Many more are hospitalized due to the 1 to 3 million serious infections that occur every year.[4]

Beyond the harm to residents, nursing facility staff members are often occupationally exposed to infectious diseases, typically via contact and droplet transmissions.[5]

Antibiotics – Uses and Risks

Antibiotics are among the most frequently prescribed medications in nursing homes, with up to 70 percent of residents receiving one or more courses of systemic antibiotics when followed over a year.

While that may be expected due to the age and condition of the typical resident, studies show that anywhere from 40 to 75 percent of these prescriptions may be unnecessary or inappropriate.

---

[1] Harris-Kojetin, L. D., Sengupta M, Park-Lee E, Valverde R. H. (2013). Long-term care services in the United States: 2013 Overview. In *Vital and Health Statistics*. 3(37). National Center for Health Statistics. 1–107.

[2] Phillip W. Smith, P. W., Bennett, G., Bradley, S., Drinka, P., Lautenbach, E., Marx, J., Mody, L., Nicolle, L., & Stevenson, K., et al. (2008). SHEA/APIC Guideline: Infection prevention and control in the long-term care facility. *American Journal of Infection Control*. 36(7): 504–35.

[3] Dwyer, L. L., Harris-Kojetin, L. D., Valverde R. H., Frazier, J. M., Simon, A. E., Stone, N. D., & Thompson, N. D. (2013). Infections in long-term care populations in the United States. *Journal of the American Geriatrics Society*. 61(3): 341–49.

[4] Centers for Disease Control and Prevention (2018). Nursing homes and assisted living (Long term care facilities [LTCF]). https://www.cdc.gov/longtermcare/index.html. Accessed, May 15, 2018.

[5] Peschin, S. (2016). CMS can do better on infection prevention and control. *McKnight's Long Term Care News*. Washington, DC. January 11.

Harms from antibiotic overuse significantly threaten resident health, including increased risks of serious diarrheal infections, adverse drug events interactions, and colonization and infection with antibiotic-resistant organisms—an increasingly alarming public health issue.[6] [7]

A National Priority in Need of an Actionable, Local Solution

Reducing infections and improving the use of antibiotics in healthcare to protect patients and reduce the threat of antibiotic resistance is a national priority.[8] The corresponding CDC objective is to optimize the treatment of infections while reducing the adverse events associated with antibiotic use.[9]

That goal, which parallels the need for individual facility improvement and public health action, requires data. And, currently, *the data are sparse and inaccessible*.

The Centers for Medicare and Medicaid Services (CMS) *require* nursing homes to establish and maintain an antibiotic stewardship program as a part of their infection prevention and control program.[10] However, there is little in the way of practical tools and methods to make infection surveillance and antibiotic stewardship easy and effective at the facility or system levels.

Facility Leaders Want Methods That *Improve*, not Just Count

All CMS-certified nursing facilities use the Minimum Data Set for collecting information on infections that impact longer-stay residents. Still, facility administrators, industry executives, and government program managers recognize the practical shortcomings. Actual improvement and better patient care require near-instant, actionable data and the MDS does not provide it.

In fact, the U.S. Department of Health and Human Services acknowledges that "there are limitations to using MDS data as a universal data source to track HAI in nursing homes."[11]

Further, as facility administrators and LTC executives nationwide know, the goal of monitoring infections is not just to count, but to:

1) Display the full scope of infection patterns
2) Identify and prioritize areas in which to intervene
3) Develop and implement enduring improvement strategies

[6] Lim C. J., Kong, D. C. M., & Stuart, R. L. (2014). Reducing inappropriate antibiotic prescribing in the residential care setting: current perspectives. *Clin Interven Aging*. 9: 165-177

[7] Nicolle L. E., Bentley, D., & Garibaldi, R. (2000). Antimicrobial use in long-term care facilities. *Infect Control Hosp Epidemiol*. 21:537–45.

[8] The White House. (2014). National strategy for combating antibiotic resistant bacteria.

[9] Centers for Disease Control and Prevention. (2014). Core elements of hospital antibiotic stewardship programs. Atlanta, GA: US Department of Health and Human Services.

[10] Centers for Medicare and Medicaid Services. (2017). §483.80(a)(3), Infection control (F441), Phase 2. Effective November 28.

[11] U.S. Department of Health and Human Services. (2013). National action plan to prevent health care-associated infections: Road map to elimination.

Recognizing these ground-level needs, HHS has noted its MDS-related concerns, including:

- MDS assessments only offer data for a point in time, often only *quarterly*
- The time between assessments may not capture important changes, including new infection events
- MDS does not capture multiple infections, timing of infections, or any data on short-stay residents[12]

Compounding the problem beyond the recognized MDS shortfalls, CDC provides hundreds of pages of suggested measures, practices, guidelines, and checklists to which scores of vendors add thousands of generic manuals, templates, and forms.

These myriad downloadable templates do not simplify the day-to-day processes required for success, nor do they result in useable, aggregated data. Instead, the added complexity often leads to considerable increases in administrative costs and intensifies the difficulty of getting one common view.

In today's rapid paced healthcare settings, a different, more sustainable approach is needed.

What About My Other Data Systems?

OPS customers say that their current systems have proven to be inadequate. Infection-related information is mostly free-form text and very difficult to aggregate or use for improvement. They say their OPS ICS is an *operational management tool* that provides daily benefits including:


Rollup reports that make survey preparation easy


Closing current information gaps


Helping determine infections and minimize risk

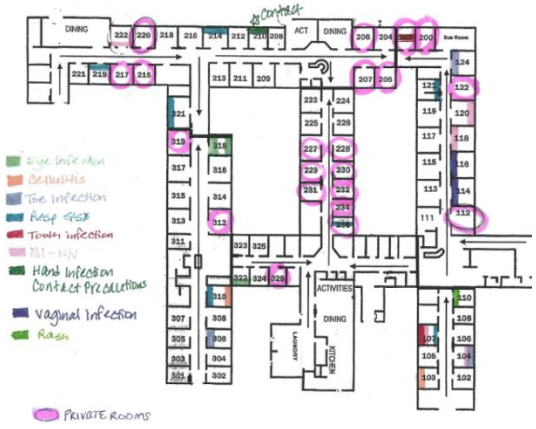

Providing better decision support visuals, not just tables of data

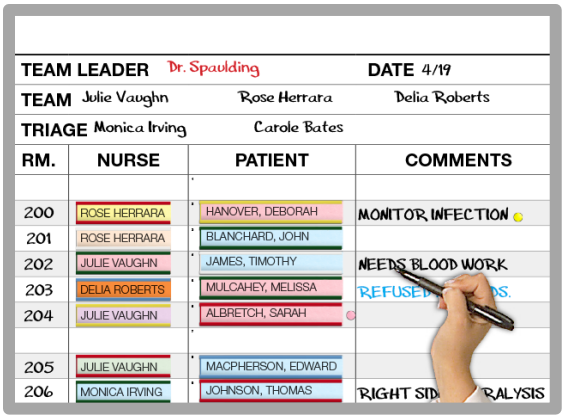

Reducing staff costs related to infection control

[12] Peschin, S. (2016). CMS can do better on infection prevention and control. *McKnight's Long Term Care News*. Washington, DC. January 11.

Making the Move From State of the Industry to State of the Art

Common approaches to daily infection surveillance and control processes include the use of white boards and annotated paper copies of facility floor plans.





TEAM LEADER	Dr. Spaulding		DATE 4/19
TEAM	Julie Vaughn	Rose Herrara	Delia Roberts
TRIAGE	Monica Irving	Carole Bates	

RM.	NURSE	PATIENT	COMMENTS
200	ROSE HERRARA	HANOVER, DEBORAH	MONITOR INFECTION
201	ROSE HERRARA	BLANCHARD, JOHN	
202	JULIE VAUGHN	JAMES, TIMOTHY	NEEDS BLOOD WORK
203	DELIA ROBERTS	MULCAHEY, MELISSA	REFUSED
204	JULIE VAUGHN	ALBRETCH, SARAH	
205	JULIE VAUGHN	MACPHERSON, EDWARD	
206	MONICA IRVING	JOHNSON, THOMAS	RIGHT SID RALYSIS

Facility administrators and corporate executives recognize the inefficiency of these approaches, but they haven't found effective alternatives. Until now.

OPS1.com Infection Control System

OPS ICS helps facilities address key issues of infection prevention, detection, control, monitoring, and communication—while simplifying administrative processes and reducing staff overtime.

ICS increases precision and awareness and improves operational effectiveness. The system reinforces evidence-based infection control and antibiotic stewardship measures while reducing the time it takes to prepare internal reports and those required by external agencies.

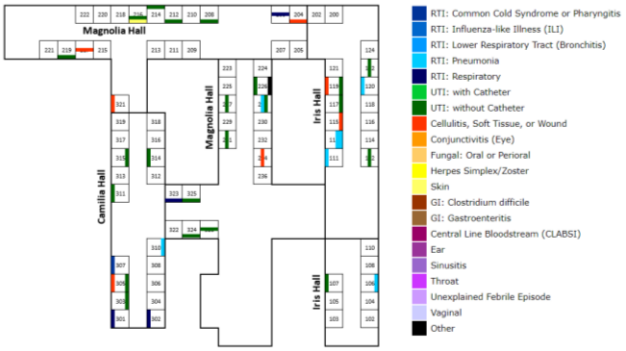
Before		After ICS by OPS
Manual; Colored pen activity	→	Point-and-click, Automated
Slow; Hours and overtime	→	Fast; Minutes
Inaccurate and variable	→	Diagnostic precision via rules engine
1 report	→	17 reports, plus specific state-required summaries
No data	→	Search and filter based on specific criteria
No integration	→	Cross-facility integration and comparisons
People intensive	→	Reduced FTE needs by ½ to 1 annually…at every facility
No measurable impact	→	Reduced infections by ~50% of National averages

Key Functions

ICS is the automated method post-acute care leaders need to minimize the transmission of infections that disrupt and undermine operations, reputations, and confidence.

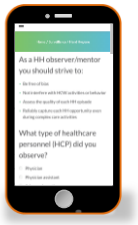
Key functions in OPS ICS include:

- Easy to navigate data entry templates
- Key information for each patient/resident (infection type; signs and symptoms; culture, specimen, and pathogen information; isolation and precaution guidance; risk factors; treatment plans)
- Facility map with infections by room, unit/ward, and patient/resident
- Auto-generated log of infection-related incidents
- Auto-generated reports that simplify survey preparation



And now…OPS ICS includes a ***mobile hand hygiene monitoring application***.

With just a few short point-and-click questions, HHM gives any staff member an easy way to provide their observations and feedback.



OPS help measurably control the spread of infection and germs to patients, residents, visitors, and staff. It's your front-line tool for driving hand hygiene best practices.

Get Started with a Demo and a Free Trial

It only takes a few minutes to get ICS ready for your organization's use.

To start a 30 day free trial or to see a demo CALL or EMAIL:

infectioncontrol@ops1.com | 650-968-7032