In-Depth Assessment of Critical Access Hospital Stewardship Program Adherence to CDC's Core Elements in Iowa and Nebraska

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Background

- Critical Access Hospitals (CAHs)[1]
  - Rural, ≤25 bed hospitals, average length of stay ≤96 hours
  - Required by Centers for Medicare and Medicaid Services (CMS) to implement effective antimicrobial stewardship programs (ASPs)
- CDC's Seven Core Elements of ASP for CAHs serve as a marker of ASP implementation[2]
- CAHs lag behind acute care hospitals in CDC core elements[3]
  - In 2019, 79.5% of CAHs met all 7 core elements compared to 92% of acute care hospitals
- CAHs make up the majority of hospitals in Nebraska and Iowa[4,5]
  - 63 CAHs in Nebraska: 59% of NE hospitals, 17% of hospital beds
  - 82 CAHs in Iowa: 65.6% of IA hospitals, 20% of hospital beds
- Collaborative effort to evaluate CAH ASPs between Nebraska Medicine Antimicrobial Stewardship Program, Nebraska Antimicrobial Stewardship Assessment and Promotion Program (ASAP), and Iowa Department of Public Health's Rural Hospital Medicare Flexibility Program
- **Aim:** We conducted evaluations of CAH ASPs via standardized self-assessments and interviews to assess adherence to CDC's core elements and barriers to implementation. Structured feedback and resources were provided to address any deficiencies

Methods

- Facilities: 16 Iowa and 5 Nebraska CAH ASPs assessed in 2022.
  - In Nebraska, CAHs self-requested an assessment.
  - In Iowa, ASPs self-identified as not meeting all seven core elements were offered assessment (16/21 responded)
- Assessment:
  - Self-assessment using standardized tool including documentation of 3 barriers to ASP implementation
  - Virtual interview (~1 hour) between CAH ASP leadership and Nebraska Medicine/ASAP ID pharmacist and ID physician
  - Assessment tool utilized to determine CDC core element adherence

Core Element Adherence	Points
Full	1
Partial	0.5
Deficient	0

- Feedback:
  - Standardized report generated to facilities documenting adherence to core elements, prioritized strategies to improve adherence, and providing implementation resources

Results

- Median of 5 full core elements met (range 2.5-6.5)
- Full or partial adherence to all seven core elements in 6/21 (28.6%) ASPs
- At least two deficient core elements in 5/21 (23.8%) ASPs

Results

Table 1: Core Element Adherence

Core Element	Full Core Element Met	Partial Core Element Met	Core Element Not Met
Leadership Commitment, N (%)	16 (76.2)	5 (23.8)	0 (0)
Accountability, N (%)	4 (19)	10 (47.6)	7 (33.3)
Drug Expertise, N (%)	10 (47.6)	10 (57.6)	1 (4.8)
Action, N (%)	21 (100)	0 (0)	0 (0)
Tracking, N (%)	15 (71.4)	5 (23.8)	1 (4.8)
Reporting, N (%)	15 (71.4)	5 (23.8)	1 (4.8)
Education, N (%)	9 (42.9)	0 (0)	12 (57.1)

Table 2: High-Priority Recommendations

Program Recommendations	N=21 (%)
Leadership Support	
Establish ASP committee meetings	7 (33.3)
Improve ASP committee representation and define committee roles	2 (9.5)
Update ASP policy	1 (4.8)
Add ASP duties to job description	1 (4.8)
Accountability/Drug Expertise	
Provide physician and pharmacist leader ASP training	19 (90.5)
Establish physician leader	7 (33.3)
Establish pharmacist leader	1 (4.8)
Collaborate between contract pharmacy and hospital	1 (4.8)
Action/Tracking	
Track antimicrobial stewardship interventions	12 (57.1)
Track antibiotic use	10 (47.6)
Implement antibiotic time-out and track usage	9 (42.9)
Implement order sets and track usage	8 (38.1)
Implement treatment guideline and track adherence	3 (14.3)
Collaborate with parent hospital system for EHR support with interventions	3 (14.3)
Implement intervention for treatment durations	2 (9.5)
Implement antibiotic indication and duration into ordering process	1 (4.8)
Establish system for missed culture follow-up	1 (4.8)
Reporting	
Report antibiotic use data to NHSN	6 (28.6)
Report antibiotic use to clinicians	4 (19)
Report via quality committee	4 (19)
Education	
Provide and track educational activities	12 (57.1)
Provide education on rapid identification panels	3 (14.3)

Results

Table 3: Top Barriers to ASP Initiation

Barriers to ASP Implementation and/or Improvement	N=20 (%)
Lack of dedicated resources, e.g., time and personnel	15 (75)
Lack of infectious disease physician or knowledge	8 (40)
EHR limitations	5 (25)
Too few patients to make impact	4 (20)
Need for clinician support and/or prioritization	5 (25)
Skilled beds antibiotic use	2 (10)

Conclusions

- Greatest core element deficiencies were in accountability and education
- Areas for improvement in CAH ASPs
  - Regular ASP meetings
  - Physician leader engagement
  - Stewardship-related training for physician and pharmacist leaders
  - Education on appropriate antibiotic use
- Strategies for improvement
  - Increase funding/protected time for stewardship activities
  - Improve electronic medical record (EMR) data tracking and reporting
  - Improve NHSN implementation and EMR integration
  - Increase access to ID physicians: telestewardship, recruitment to rural areas
  - Creation of national program for educating non-ID clinicians in ASP leadership
  - Further study of CAH ASPs to identify creative solutions given resource limitations

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