

Strengthening Organizations to Implement Evidence-Based Clinical Practices

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November 18, 2009

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VISN leaders

Study aim

- To test an organizational model hypothesized to strengthen the ability of healthcare organizations to implement evidence-based clinical practices.

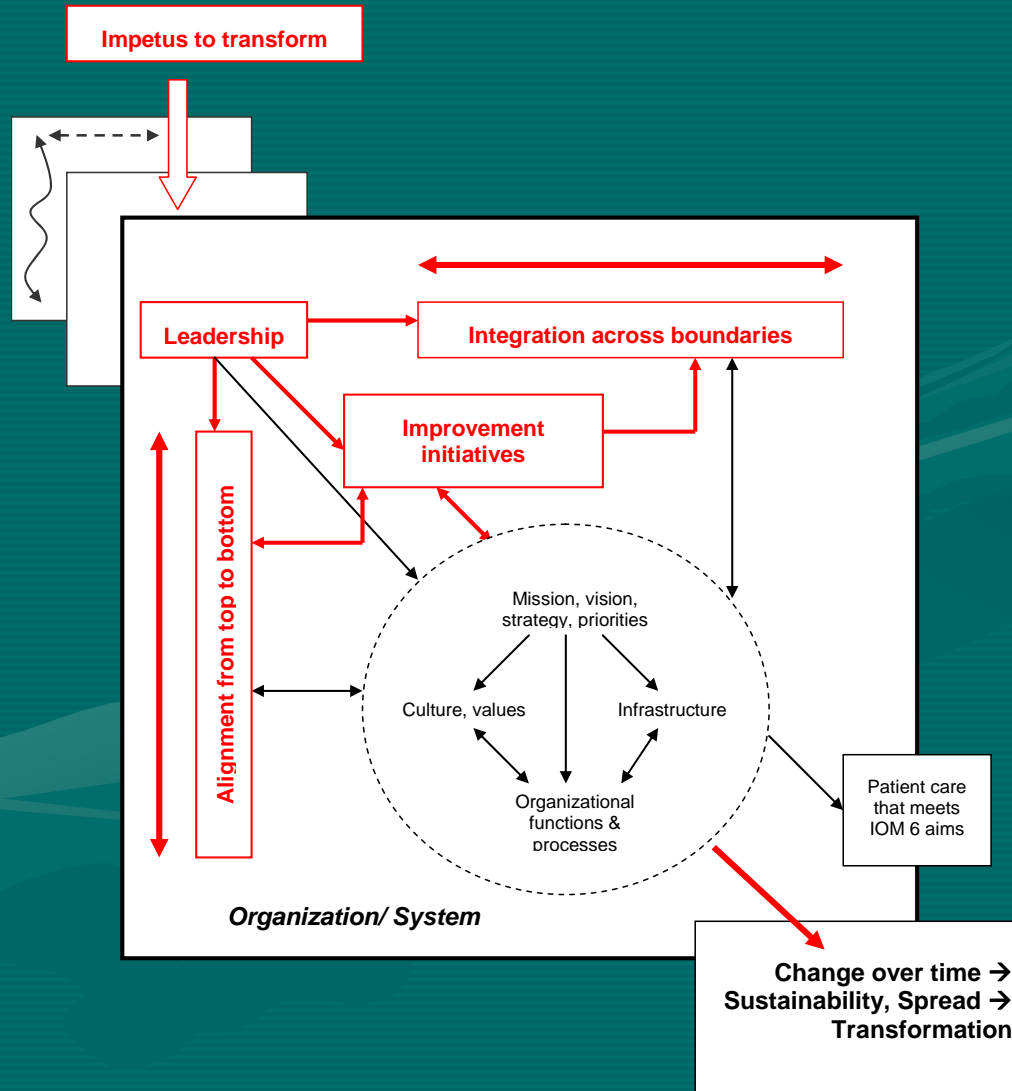
Organizational model based on two premises

- Implementing evidence-based clinical practices is often a complex intervention that requires substantial organizational change
- Substantial organizational change requires balancing organizational strategy & direction from senior leaders with front-line activity & involvement of staff

Organizational model developed from Organizational Transformation Model (OTM)

- OTM was developed in evaluation of Robert Wood Johnson Foundation's *Pursuing Perfection* initiative
- OTM identifies five interactive elements that appeared critical to successful transformation of patient care

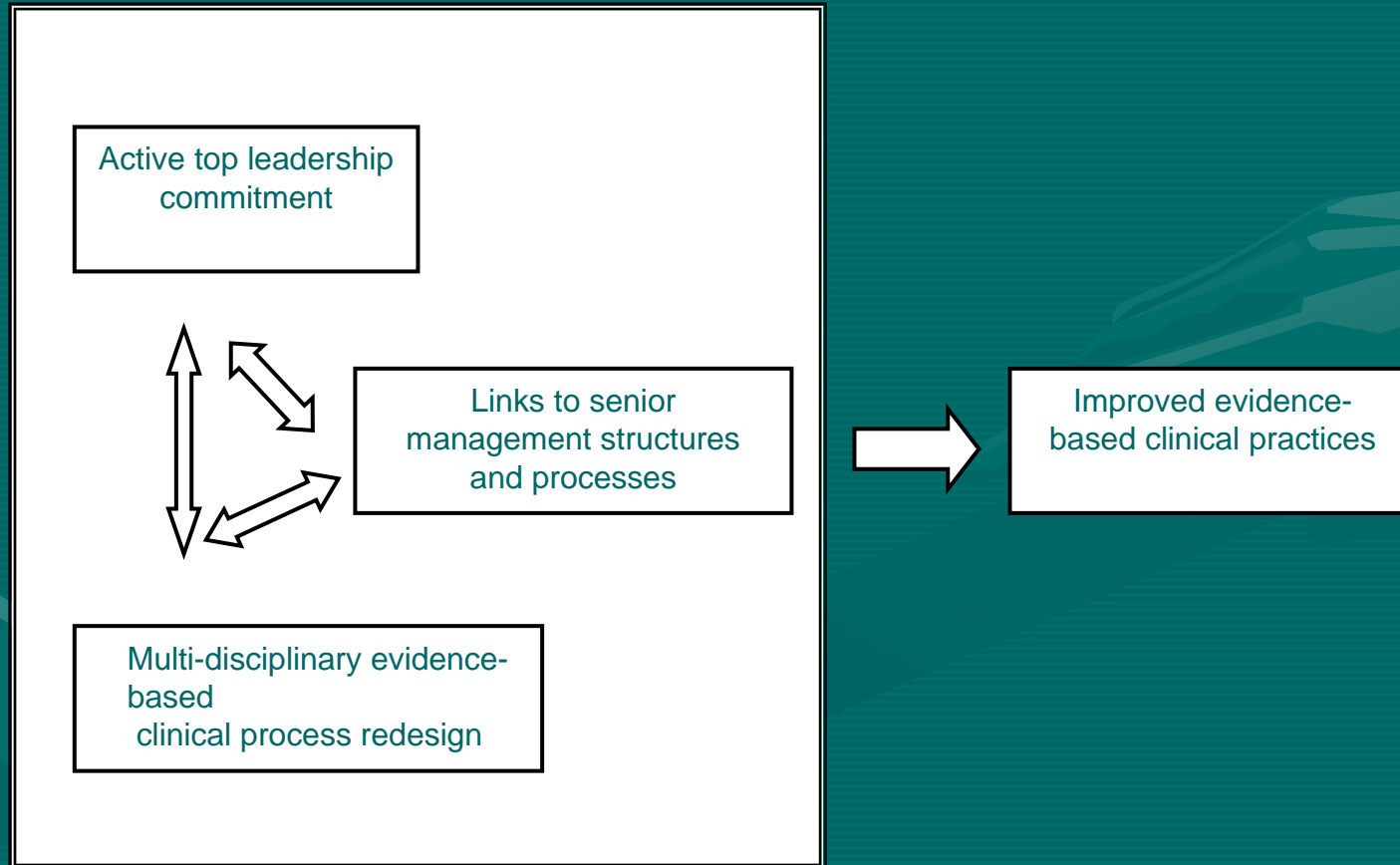
Organizational Transformation Model



Organizational model reflects OTM consolidated

- Expect that organizational elements that drive organizational transformation will facilitate change required to implement evidence-based practices

Organizational model tested in this study



Study design

- Study designed in collaboration with directors and chief medical officers of 3 participating VISNs, or Networks
- Mixed-methods pre-post comparison group intervention in 16 medical centers in 3 networks in the department of Veterans Affairs (VA)
 - 1 Network and its medical centers randomly selected to implement the organizational model
 - Other 2 Networks served as comparison group
- This analysis focused on comparative case studies of 7 medical centers in organizational-model arm

Study questions

- Is the organizational model implemented with high fidelity to the model design?
- Are medical centers that implement the model with high fidelity more successful in improving performance of a targeted evidence-based clinical practice than medical centers that implement fewer elements?
- Why is the organizational model implementation successful or not successful?

Discussion

- Is our framework consistent with your experiences in healthcare organizations?
- In your experience, what makes healthcare improvement efforts successful?
- What facilitates the use of evidence-based clinical practices?

Methods: the intervention

- Study sites
- Clinical focus
- Operational definition of model
- Activities to introduce and support the model

Study sites

- 7 participating medical centers varied in size, location, services provided & academic affiliation
- Senior leadership in each medical center was a quadrad – medical center director, chief of staff, nurse executive & associate director
- All medical centers part of the same network, under one network director

Clinical focus on hand-hygiene compliance

- Clinical redesign process component required specific clinical focus to engage staff
- Compliance with evidence-based hand-hygiene guidelines evidenced-based and high priority:
 - fundamental aspect of infection control
 - requirement of The Joint Commission
 - new high priority for improvement in the VA at the time of study design

HAND HYGIENE

BREAK THE GERM CYCLE

There are germs on your hands, and hands, and others, all have germs.

SAVE TIME

Using an alcohol hand rub saves time. It's faster than washing with soap and water.

What Are the Top 10 Carriers of Infectious Agents?

Use an alcohol hand rub or antimicrobial soap to decontaminate your hands.

Quick Test

Check your hand hygiene skills. A quick test to see if you're doing it right.

Handwashing = Good!

Handwashing is good! It kills germs and keeps you healthy.

Things we have a hard time talking people - but they'd want to know anyway...

Handwashing is good! It kills germs and keeps you healthy.

CDC Guidelines on Hand Hygiene

If you only remember one thing, remember this: **Wash your hands for 20 seconds.** Why?

- They kill germs better and prevent better infections - better protection for patients.
- They are easier to do correctly.
- Fluorescing only uses about 20-30% of the soap that should be used.
- They are fast and easy to do.

How can I protect my hands from irritation?

- Use alcohol hand rubs. They contain emollients to protect hands.
- Always use warm, not hot water.
- Always use hands before applying soap.
- Always use soap completely.
- Apply lotion after washing with soap and water.

Why do we need to improve hand hygiene practices?

Hand hygiene is the most important way to prevent the spread of infections. It's the single most effective way to prevent the spread of infections.

What is the right way to wash your hands?

Wash your hands for at least 20 seconds. Use warm water and soap. Rub your hands together.

You may not realize you have germs on your hands!

Wash your hands often. Use soap and water. Rub your hands together.

Why is compliance with recommended handwashing so poor?

There are several reasons why healthcare workers do not wash their hands as often as they should.

ALL HANDS THE PUMP

Wash your hands often. Use soap and water. Rub your hands together.

Patients & Visitors: It's okay to ask healthcare workers to wash their hands.

Wash your hands often. Use soap and water. Rub your hands together.

EVERY PART OF YOUR HANDS

CLEAN YOUR HANDS

STOP

REMOVE SOAP

"Live Long and Prosper"

Decontaminate your hands!

Clean your HANDS

Wash your hands often. Use soap and water. Rub your hands together.

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Operational definition of organizational model

- Organizational model is defined conceptually in broad terms of model components
- But components need to be operationalized in order to be implemented:
 - research team identified key elements in each component
 - medical centers identified details of structures and processes they would use to put each element into place

Examples of operational elements of model

- Senior leadership commitment
 - Set high expectations for improvement
 - Invest own time on improvement-related activities
- Linkages to senior leadership
 - Appoint a leadership champion
 - Identify clear path for team reporting to senior leadership for accountability & support
- Multi-disciplinary evidence-based redesign team
 - Appoint members from affected disciplines & units
 - Use systematic methods to analyze processes & performance

Introducing and supporting the model

- Introduced at multiple levels within the network
 - leadership consortium
 - facility-level teams
 - shared learning group across facilities
- Consistent assignment of research team members to sites
- Initial visit template

Intervention at 7 medical centers

- Initial site visit for introduction of the project and assessment of baseline state of the model components
- Follow up work with site to complete implementation plan
- Repeat visits every 4-6 months over 2 ½ years
- VISN-wide support
 - Shared learning groups monthly
 - Leadership consortium quarterly

Discussion

- How to develop/evoke commitment at lower levels when the decision to participate was top-down?
- How is feedback process affected by knowledge that we'll be visiting again?

Four data sources

- Organizational-model implementation fidelity ratings
 - fidelity of implementation
- Observations of hand-hygiene compliance
 - compliance rates
- Semi-structured interviews during site visits
- Site visit impressions journals
 - factors affecting implementation fidelity

Fidelity implementation

Data source: Ratings and narrative evidence of fidelity for each model element completed by site-visit research team at end of each visit

Measures:

- Ratings on a 0-4 scale (0= element not present; 4= element in place and consistently used as intended)
 - Component scores created by aggregating elements and calculating an unweighted mean
 - Overall site fidelity ratings calculated mean of 3 component scores
- Narrative evidence analyzed qualitatively by cross-site comparisons structured by fidelity instrument

Hand-hygiene compliance

Data source: Observations of hand-hygiene compliance measured through structured observations by medical center staff

Measures:

- Percent compliance for each observation period at site level.
- Effect size of improvement in compliance calculated by comparing the baseline 3-month periods to the last 3-month periods of the study
- Statistical significance tested through a weighted least squares regression model with:
 - time (i.e., month) as independent variable
 - compliance percent as dependent variable
 - sample size in each data collection period as weight.

Factors affecting fidelity

Data source: Notes from semi-structured interviews and impressions journals completed by research team during site visits

Measurement: Notes coded by members of team who did not visit the particular site being coded

- Thematic analyses beginning with individual site cases
- Data organized into matrices for cross-site comparisons

Discussion

- How might variation in site visit teams have influence fidelity ratings?
- How did leadership changes within the facilities affect change between visits?

Study Q 1:

Is the organizational model implemented with high fidelity to the model design?

Fidelity to the model varied considerably

- Final overall fidelity ratings ranged from 1.42 to 3.95
- Sites clustered in two groups by extent of fidelity

Facility	Fidelity: overall	Fidelity: overall change from baseline	Fidelity rank order
A	3.95	2.82	1
B	3.38	2.11	2
C	3.23	1.99	3
D	3.17	1.84	4
E	2.15	1.21	5
F	1.98	0.41	6
G	1.42	-0.05	7

Narrative evidence expands on the quantitative findings

- High and low fidelity groups show different patterns of behavior, activities and structures
- Model components interact and are mutually reinforcing

Active leadership commitment to improving the targeted practices

In the *high fidelity* group, senior medical center leaders:

- Set clear expectations about target levels of compliance and sent the message that current practices were deficient
- Were consistently involved and supportive of hand hygiene improvement across settings and over time and stayed focused on those efforts
- Served as role models and champions for hand hygiene and created opportunities for communication and awareness

In the *low fidelity* group, senior leaders:

- Were not consistent in their involvement
- Generated little sense of urgency for improvement across the organization
- Did not communicate clearly about expected levels of hand-hygiene compliance
- Talked about hand hygiene when issue arose but did not create opportunities

Robust clinical process redesign to engage staff and incorporate evidence-based practices in routine operations

In the *high fidelity* group, clinical redesign teams:

- Were energetic and visible
- Tended to involve all staff affected by redesign efforts on their teams.
- Had strong leaders with excellent project management skills who often drew in clinical leaders
- Often involved experienced quality improvement experts as team members or advisors
- Went beyond basic improvement to higher reliability methods

In the *low fidelity* group, clinical process redesign was often more ad hoc.

- Teams never got off the ground or fell away to just the skeleton of a team.
- Sites did not use formal process improvement methods and typically never went much beyond communication initiatives.
- Teams collected data but did not use it to help understand possible sources of non-compliance or the impacts of their intervention activities.
- Often low fidelity sites felt their teams lacked the leadership, the authority or the infrastructure to accomplish their goals.

Linkages to management structures and processes to support, align & integrate redesign

In the *high fidelity* group,

- There were explicit strategies to link improvement efforts to senior management.
- Cabinet champions were explicitly identified and actively involved as liaison with the redesign teams.
- Sites used formal management structures to influence the improvement process -- data monitoring and accountability, problem solving across departments, allocation of resources, staff recognition and communication.
- Hand-hygiene compliance data was reviewed regularly by senior leaders

In the *low fidelity* group,

- Cabinet champions were less consistently identified and involved, sometimes champions in name only
- Reporting of hand-hygiene data sometimes was buried several layers below leadership
- Little systematic follow-up action when low performance reported; sometimes perception that negative information not welcome

Study Q 2:

Are medical centers that implement the model with high fidelity more successful in improving performance of a targeted evidence-based clinical practice than medical centers that implement fewer elements of the model?

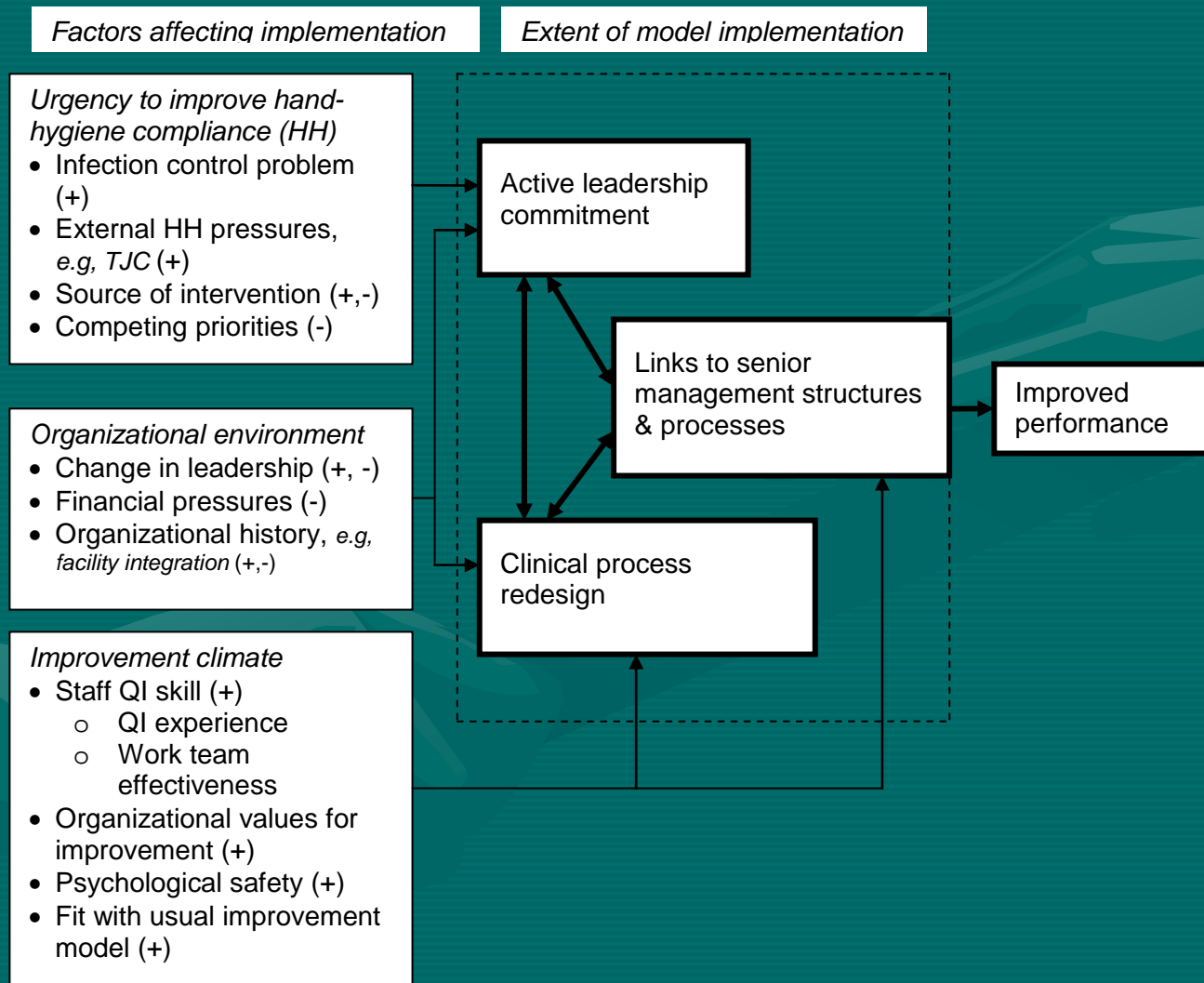
Greater fidelity to the model was associated with greater improvement in compliance with hand-hygiene guidelines

Facility	Model fidelity: overall	Hand-hygiene adherence: pre-period	Hand-hygiene adherence: post-period	Effect Size*
A	3.95	67.6	92.9	.67 (.69)
B	3.38	74.2	91.5	.48 (.40)
C	3.23	37.4	80.9	.92 (.22)
D	3.17	81.7	96.8	.52 (.53)
E	2.15	69.1	75.2	.14 (.07)
F	1.98	61.5	68.3	.14 (-.27)
G	1.42	80.1	70.8	-0.22 (-0.29)

Study Q 3

Why is the organizational model implementation successful or not successful?

Extent of implementation fidelity was affected by competing forces of positive and negative factors



While each site had its own array of forces, patterns emerged across sites

Sites with *high fidelity*,

- Shared the urgency to improve compliance with hand hygiene
- Had no major aspects of the organizational environment that interfered with implementation
- Had a positive improvement climate including:
 - Staff experience and skills with quality improvement,
 - organizational values for improvement where staff felt safe trying and speaking about necessary changes
- In some cases, fit between this intervention and site's usual quality improvement approaches

Conclusions:

Implementation strengthened by presence of 3 model components

- The 3 components interact and are mutually reinforcing:
 - Active leadership commitment to improving the targeted practices,
 - Robust clinical process redesign to engage staff and incorporate evidence-based practices in routine operations
 - Links to management structures and processes to support, align and integrate redesign
- Organizational factors affecting implementation while specific to each site also reveal some patterns across sites. Sites with greatest extent of model implementation:
 - Shared urgency to improve compliance with hand hygiene
 - Had no major aspects of the organizational environment that interfered with implementation; and
 - Had a positive improvement climate

Limitations

- Implementation in one Network in VA
- Hand-hygiene observations done locally
- Different team members interacted with each site; thus the intervention team actions might have differed in unmeasured ways

Implications

- Study confirms expectations that implementation of evidence-based clinical practices, particularly those like hand hygiene that cut across multiple processes of care is:
 - Often a complex process in which there are many possibilities for failure
 - Influenced by organizational elements and context
- Study provides refined understanding of relationships among components of the organizational model and with factors in organizational contexts affecting them which provide basis to:
 - Draw practical lessons for future implementation efforts
 - Contribute to the theoretical understanding of the dynamics of the implementation of evidence-based practices