Long-term Care (LTC) Boot Camp Introduction to Infection Prevention & Surveillance

Diane Dohm, MT, IP, CIC, CPHQ
Lake Superior QIN
Objectives

• Discuss surveillance
• Use your data to drive action
• Recognize early indications of possible outbreak
• Isolate the organism not the resident – Transmission-based Precautions
• Highlight common Infection Prevention & Control Program (IPCP) F 880 citations
• Review training opportunities
Your Journey Begins…….

You became the Infection Preventionist

- Initial training (predecessor)
- Existing facility policies
- What data were they collecting?

Today’s program

- Review/start with the basics
- Provide you with resources
- Where to go for more information

Just the beginning……..
Surveillance

Definition:
Surveillance is the ongoing systematic *collection*, *analysis*, *interpretation* and dissemination of data to identify infections and infection risks.

Division of Quality Assurance
Data Collection Requirements

- Surveillance plan, based on facility assessment, for identifying, tracking, monitoring, and reporting of infections
- Early detection, management of a potentially infectious, symptomatic resident and implementation of appropriate transmission-based precautions
- Uses evidence based surveillance criteria (CDC, National Healthcare Safety Network [NHSN] LTC or revised McGee Criteria)
- Reportable Communicable Diseases

Infection Prevention, Control & Immunizations, Critical Element Pathway, CMS-20054
Data Collection Requirements

• Staff must be able to identify to whom and when communicable diseases, healthcare associated infections and potential outbreaks must be reported (What happens when Infection Prevention is not in house?)

• Prohibit employees with a communicable disease or infected skin lesion from direct contact with residents or their food.

Infection Prevention, Control & Immunizations, Critical Element Pathway, CMS-20054
Infection Log
(Master line list of all infections and symptomatic residents)

- Resident (permanent identifier)
- Location in facility
- Date of current admission
- Symptoms present
- Date symptoms began/resolved
- Date culture collected (if done)
- Invasive device insertion/removal date
- Organism identified – Multidrug Resistant Organism (MDRO)
Infection Log

• Facility Onset vs. Community Onset (less than 72 hours)
• Infection Worksheet completed [NHSN Urinary Track Infection (UTI)]
• Criteria met (McGeer’s/NHSN)
• Transmission-based Precaution start/end date
• Provider notified
• Antibiotics – date started/discontinued
• Part of outbreak Yes/No
• Public Health reporting requirement or assistance requested
Antibiotic stewardship may also be recorded separately elsewhere including:

- Antibiotic prescribed
- Dose, route, frequency
- Start date
- End date
- Total number days of therapy
- Appropriate use – met criteria
What do I track on log?

- UTI
  - Catheter present
  - No Catheter
- Gastrointestinal Illness (GI)
  - Norovirus
- *C. difficile* Infection (CDI)
- Wounds
  - Organism – MDRO
What do I track on log?

- Influenza Like Illness
- Pneumonia
- Conjunctivitis
- Scabies
- Other infections identified on Risk Assessment
  - Ventilator Associated Event – Pneumonia
  - Central Line Associated Blood Infection (CLABI)
  - Miscellaneous
Standard Case Definitions

- McGee criteria (2012)
- Loeb criteria (2001)
- NHSN definitions for reporting purposes
- Be consistent for comparison internally and externally
- Identification of infection is not based on single piece of evidence
How do I get infection data?

What is your facility process?
- Automatic electronic medical record (EMR) trigger
- Culture and laboratory reports
- Antibiotic starts
- Symptom reporting – morning huddle
- Rounding
Calculating Infection Rates

Number of Infections $\times$ Constant = Rate of Infection
Population at Risk

Population at risk may be expressed as total resident days or specifically as residents with a urinary catheter.

Constant varies with infection type, for example,

- UTI, constant = 1000
- CDI, constant = 10,000
Process Measure Surveillance

- Hand Hygiene
- Personal Protective Equipment (PPE) use – adherence to policy
- Cleaning of resident rooms, terminal cleaning
- Cleaning and disinfection of shared equipment
  - Glucometer, podiatry and dental equipment
  - Blood pressure cuffs, rehab and therapy
- Inspection of shared bath pads and wheelchair pads for breaks
- Point of care testing
Process Measure Surveillance

- Medication administration
- Injection safety practices
- Wound care
- Perineal care
- Catheter care

No one can do all of these, all the time
Set priorities, you may need to rotate others monthly.
Managing Data
You have the data, what now?

Infection Prevention and Control Plan “includes ongoing analysis of surveillance data, and review of data and documentation of follow-up activity in response”

Infection Prevention, Control and Immunizations, Critical Element Pathway, CMS-20054
Facility data should drive your Infection Prevention Program and actions

• Helps with prioritization of your improvement efforts

How do you know how well you are doing?

• Surveillance data
• Compare your current data to past data (baseline)
• Analyze in **timely manner**
Baseline

Internal (Infection Log)

External

• Certification and Survey Provider Enhanced Reporting (CASPER)
• Other facilities in your “group” or corporation
• NHSN
  • More LTC facilities reporting data = better baseline rates
• Literature search
Analyze Data

Compare current data to baseline to detect
• Unusual or unexpected occurrences
• Sentinel (serious) event
• Trends
• Clusters
• Non-compliance with policy/protocols
Analyze Data

Trend:
• Underlying pattern of your data points in a time series of data
• Rising, falling or steady?
• Run Chart commonly used
A cluster is when data is centered or located around one particular value or location.

- Specific floor or ward
- Specific provider

The specific improvement efforts may be more concentrated versus house wide.
Increase in Number of Infections

• Surveillance should quickly identify an increase in infections (waiting till year end is not helpful)

• What actions do you need to take now?
  • Are processes/protocols being followed?
  • Competency/training
**Prevalence vs. Incidence**

**Prevalence:** is a measure of total cases

- Total number of cases at a given time
- Total population at risk at given time

How many people have this disease right now?
**Incidence:** is a measure of *new* cases arising in a population over a given period (month, year)

Number of new cases of a disease in a time period

Population at risk of disease in a time period

How many people, per year, newly acquire this disease?
Goal: prevent future harm

- Learn from adverse event and **take action** to prevent recurrence, monitor for compliance to changes
- Not used to punish or discipline
- Identify system issues so they can be mitigated or eliminated
- Quality Assurance & Performance Improvement (**QAPI**)
Changes in Prevalent Organisms or Resistance

• Common pathogens found in the urinary tract: E.coli (40 percent), Klebsiella, Proteus, Providencia, Morganella
  • Change in pathogens should be an alert
  • Increase in unusual organism

• Resistance Patterns
  • Increase in Methicillin Resistant Staph Aureus (MRSA)
  • Carbapenem-resistant Enterobacteriaceae (CRE)
  • Increase in quinolone resistance
Protocols/process identified in your Infection Prevention and Control Plan

• Keep general vs. specific
  • Identify threshold/trigger (action limit)
  • Identify control measures to be instituted
  • Who to notify – how quickly?
    o Medical director
    o Leadership
    o QAA
    o Public Health

Unique to your organization
Data Drives Actions Needed

- Identify infection control issues – make recommendations for corrective action
- Short and long range planning educational activities
- Helps to prioritize actions

Document these assessments in your QAA committee meetings
Who do you present data to?

- Leadership
- Governing Board
- Infection Prevention and Control Committee
- QAA Committee
What data do you present to your QAA Committee?

- Relevant data
  - Increase in UTI and inappropriate antibiotic usage versus just total number of infections
  - Needs to be actionable
- Changes from baseline
- Actions already taken and results of those actions
- Additional actions planned
- Request assistance/guidance with system changes needed
Who else needs this Data?

- Medical Director – Providers
  - Infection rates
  - Antibiotic Utilization
- Staff
  - Infection rates
  - Hand hygiene rates
  - Audit results
- Resident council when appropriate
Data Dissemination Methods

Once you determine what information they need, you will have to determine the best way to provide information to each group.

- Provider newsletter
- Staff meetings
- Graphs displayed in staff areas
Outbreak Management
Possible Outbreak Identified

Surveillance data (morning huddle) has shown an increase in GI or respiratory illness.

What now?
Outbreak Management

• Three main steps are done almost simultaneously
  • Recognize
  • Contain
  • Notify
Policy for Outbreak Investigation

- Process should be specific to your facility and be spelled out in detail so anyone can follow (for example: agency staff on a weekend)
  - Outbreak measures that will be initiated whenever there is increase in illness above expected or baseline
  - General definition is greater than or equal to three residents/staff (combined) experiencing symptoms within a 72 hour period on same wing/floor
  - Confirm staff are aware of process/policy
Recognize Early

• More illness than usual
  • Know “trigger” for action
• Trigger may vary by disease
• Surveillance mechanism in place
  • Line list of ill residents and staff with specific disease symptoms
• Review 24 hour logs for ill residents
  • Communication between shifts is important
• Who monitors staff call ins? Must combine with resident illness to get complete picture
Containment

Containment strategies may depend on cause of outbreak and state requirements.

Work with local health department (LHD) to determine best strategies.

Are transmission based precautions indicated?

- Contact, Droplet, Other, Combination

Centers for Disease Control & Preventions (CDC) Type and Duration of Precautions Appendix A

https://www.cdc.gov/infectioncontrol/guidelines/isolation/appendix/type-duration-precautions.html
Containment Examples – Type and Duration of Precautions

Contact Precautions:

• Prevent transmission from person to person or environment to person
• Gown and gloves for direct contact with resident or contaminated environment, don prior to entry

Droplet Precautions:

• Prevent transmission spread through respiratory secretions or mucous membrane contact
• Healthcare workers (HCW) should wear a mask for close contact, don prior to entering room
Containment

• What PPE is indicated?
  • Do you have adequate supplies?
  • How often and by whom will it be restocked?
  • Locate as near to point of use as possible
  • Outside of room entrance
Gastrointestinal Illness – Specific Containment Measures

- Soap and water indicated for hand hygiene
- Mask and goggles or face shield if vomitus is present
- Bleach based cleaners (premixed or mixed fresh every 24 hours)
- Clean most contaminated areas of room last
- Change mop heads when a new bucket of cleaning solution is prepared
- Steam clean carpet and upholstery if soiled, do not dry vacuum to prevent re-circulation of virus
Containment

Cleaning and disinfection

• Are special products indicated?
• Should frequency of cleaning be increased, especially in common areas and frequently touched objects?
  • Continue increased frequency for 72 hours after last case has recovered
• Clean Medication carts and Vitals machines before and after use
• Dedicate commonly used equipment
Containment Strategies to Consider

• Restrict ill resident’s activities until 48 hours after symptom resolution
• Minimize movement of residents from affected location to unaffected location
• Evaluate need to cancel group activities until 48 hours after well date of last case
• Non-ill residents should not be confined or restricted to their rooms during outbreak (Wisconsin guide)

Can be a difficult balance:
Containment ↔ Restriction
Containment Strategies

Consider limiting new admissions:

- Consider admitting new residents to unaffected area or area where all residents have been asymptomatic for 48 hours.
- Inform prospective residents and health care providers about ongoing outbreak.

If transferring resident for any reason, be sure Emergency Medical Services (EMS) and receiving facility are aware of outbreak.
Containment Strategies to Consider

Families/Visitors

- Notify resident’s representative/family
- Post signage alerting visitors of outbreak
- Encourage non-essential visitors to reschedule visit
- Visitors who decide to visit should be provided education and provided PPE as indicated
Staff

- Are additional education or in-services needed?
- Can you maintain same staff assignments to residents, limiting staff moving from affected to unaffected units?
- Staff should exclude themselves from resident care at onset of symptoms – leave work
  - Difficult when short staffed but important
- Are your staff illness policies clear on time of exclusion from work? (generally – 48 hours after symptom resolution)
Notify

• Unit staff notify person in charge/Infection Preventionist (IP) when available
• Director of Nursing (DON) – Medical Director (MD)
• Administrator – Leadership
• All care providers for resident to determine if any changes to medical management are needed.
• “Sister” or adjacent facilities that may share staff
• Contracted Ancillary services
• **All** staff including dietary, housekeeping, maintenance, laundry etc.
Notify

- Local Health Department – notify of any suspected or confirmed outbreak
  - Will ask for information on your line list
  - Will advise regarding obtaining cultures/testing
  - Will advise regarding treatment and prophylaxis
  - Can also help to evaluate the need for possible containment and confinement strategies
Review post – Resolution of Outbreak

• What worked well?
• What can be improved on for next time?
• What surprised you?
Outbreak Review

• Complete all line list entries
  • Dates start/stop, well dates etc.
• Complete narrative summary
  • Chronological timeline of what happened, what actions were taken, results of those actions and etc. that an outside reviewer could follow
• Interdisciplinary team completes an evaluation of outbreak once all information is available
Outbreak Review

• Take team recommendations for preventative measures, and changes to policy to QAA/IPC Committee
• Put approved recommendations into policy
• Educate staff on any changes in policy
• Monitor for compliance to changes in policy
Two Important Resources

Reporting, prevention and control of acute respiratory illness outbreaks in LTC facilities


Recommendations for the prevention and control of acute gastroenteritis outbreaks in LTC facilities

https://www.dhs.wisconsin.gov/publications/p0/p00653.pdf
Reminder to Write Down Questions
Transmission-based Precautions
Standard Precautions

• Also known as Universal Precautions
• Based on principle that all body fluids may contain transmissible pathogens
• Used for all resident care at all times
• Hand hygiene
• Use of gloves, gown, mask and eye protection or face shield depending on the anticipated risk of an exposure
• First tier of protection
Recognizing the Need for Additional Precautions

- Signs and symptoms of infection
- Microbiology report or sensitivity report showing a Multi-Drug Resistant Organism
- On the advice of Public Health
- CDC Type and Duration of Precautions – Appendix A

https://www.cdc.gov/infectioncontrol/guidelines/isolation/appendix/type-duration-precautions.html
Transmission Based Precautions (TBP)

- Used in addition to Standard Precautions (Second tier)
- Also known as Isolation Precautions
- Used to manage specific, highly transmissible or epidemiologically important pathogens
- Based on the mode of transmission (how is it spread)
  - Contact
  - Droplet
  - Airborne

PPE to be used is also based on mode of transmission.
Donning PPE

The type of PPE indicated will depend on mode of transmission.

1. GOWN
   • Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
   • Fasten in back of neck and waist

2. MASK OR RESPIRATOR
   • Secure ties or elastic bands at middle of head and neck
   • Fit flexible band to nose bridge
   • Fit snug to face and below chin
   • Fit-check respirator

3. GOGGLES OR FACE SHIELD
   • Place over face and eyes and adjust to fit

4. GLOVES
   • Extend to cover wrist of isolation gown

CDC Donning & Doffing sequence
PPE must be removed carefully, and in the proper sequence, in order to minimize contamination risk.
Removing Gloves

How to Remove Gloves

To protect yourself, use the following steps to take off gloves:

1. With both hands gloved, grasp the outside of one glove at the top of your wrist, being careful not to touch your bare skin.
2. Peel off this first glove, peeling away from your body and front wrist to fingertips, turning the glove inside out.
3. Hold the glove you just removed in your gloved hand.
4. With your ungloved hand, peel off the second glove by meeting your fingers inside the glove at the top of your wrist.
5. Turn the second glove inside out while pulling it away from your body, leaving the first glove inside the second.
6. Dispose of the gloves safely. Do not reuse the gloves.

Clean your hands immediately after removing gloves and before touching any objects or surfaces.
Contact Precautions (CP)

• Indicated for residents known or suspected to be infected with microorganisms that can be easily transmitted by direct or indirect contact

• Clinical assessment of secretion containment or infection syndrome as well as culture results if available
  • Wound with drainage that cannot be contained
  • Resident incontinent of stool or other body fluid
Contact Precautions

- Staff don PPE prior to entry to room, remove when leaving room (single use)
- Staff should not perform care procedures or utilize PPE in common areas (exception – emergency life support services)
- If resident needs care after leaving their room, the care team should assist the resident in returning to their room prior to performing cares
Resident on clinical pathology (CP) may be allowed to go to the dining room or activity room if the site of infection can be covered and secretions contained. Resident’s personal hygiene and behavior should be assessed to minimize the risk of transmission to others.

Resident on CP should perform hand hygiene before leaving room.
Contact Precautions – Resident Assessment

- Residents who are symptomatic with an active respiratory infection caused by an MDRO or active CDI diarrhea should not attend group dining or activities as long as symptoms persist

  APIC - Infection Preventionists Guide to Long-Term Care

- **Contact Precautions = gown and gloves (minimally)**
  - Mask and goggles (or facemask) if splash or spray of body fluids is anticipated
  - Cover all mucous membranes
Droplet Precautions (DP)

- Indicated when microorganisms are transmitted by large droplets generated by sneezing, coughing or talking
  - Includes Influenza, Adenovirus, Mycoplasma pneumonia, Haemophilus influenzae, Neisseria meningitides and others
- Potential distance of transmission is three to six feet or more
- Spatial separation and drawing privacy curtain between resident beds is important (curtain should be changed upon resolution of illness)
Airborne Precautions

• Indicated when pathogenic organisms are transmitted by small particles that can remain suspended in the air
  • Includes Tuberculosis, Measles, Varicella and disseminated Shingles and others
• Healthcare providers must wear an N95 respirator for which they have been fit tested or Powered Air Purifying Respirator (PAPR)
• Airborne Infection Isolation Room (AIIR), also called a negative pressure room, must be used
Airborne Precautions

Most nursing homes are not equipped with AIIR nor are their staff fit tested for N95. Work with public health to minimize risk while arrangements are made to transfer resident to facility that is equipped to handle these special needs.

- Can resident tolerate surgical mask?
- Have you notified EMS and receiving facility of need for Airborne Precautions?
Transmission Based Precautions (TBP)

Combination of precautions may be indicated:

Contact + Droplet for example

- Gastrointestinal illness and Respiratory Illness
- Draining wound and Mycoplasma pneumonia

All PPE is meant to be worn once and discarded in trash (disposable) or handled and cleaned appropriately (cloth gowns – laundry).

Use disposables when possible, dedicate equipment or clean/disinfect between every use.
TBP

• Handled differently in the Long-Term care than in the hospital setting
• Balance between the restriction to resident and consequences of TBP and the need to prevent the possible spread of disease within the LTC facility
• Based on individual risk assessment
  • Document that assessment, initiation and discontinuation of TBP in resident care plan
Resident Risk Assessment

Consider the three C’s:

• Presence of draining wounds, indwelling devices, secretion containment (Contain)
• The ability of resident to understand and follow directions (Cognitive/Cooperative)
• Personal hygiene – hand hygiene, clean garments (Clean)
Colonization vs. Infection

Colonization
- Presence of a microorganism
- No signs or symptoms of infection
- Usually not an indication for TBP

Note: be aware of specific state Public Health requirements for pathogens such as Carbapenem-resistant Enterobacteriaceae (CRE)
Transmission Based Precautions

• Should be maintained as long as the resident has clinical signs and symptoms of an infection – stated as “Duration of Illness” on Appendix A

• Once the signs and symptoms of infection have resolved, and treatment is completed, precautions can usually be discontinued

Note: Be aware of specific state Public Health requirements for pathogens such as CRE.
Transmission Based Precautions

Do not place residents with different active infections in the same room. Cohort like residents if indicated.

Do not perform “test for cure” or “clearance cultures” when antimicrobial treatment is completed and resident no longer shows signs or symptoms of infection.
Antibiotic Stewardship
Antibiotic Stewardship (ABS)

The Core Elements of Antibiotic Stewardship for Nursing Homes: ABS

Antibiotic stewardship refers to a set of commitments and actions designed to “optimize the treatment of infections while reducing the adverse events associated with antibiotic use.” The Centers for Disease Control and Prevention (CDC)
“Nursing homes are encouraged to work in a step-wise fashion, implementing one or two activities to start and gradually adding new strategies from each element over time.

Any action taken to improve antibiotic use is expected to reduce adverse events, prevent emergence of resistance, and lead to better outcomes for residents in this setting.” - CDC
Antibiotics are among the most frequently prescribed medications in nursing homes.

70 percent of residents in a nursing home receive one or more courses of systemic antibiotics when followed over a year.

40–75 percent of antibiotics prescribed in nursing homes may be unnecessary or inappropriate.
Antibiotics Possible Harm

• Risk of serious diarrheal infections from CDI
• Increased adverse drug events and drug interactions
• Colonization and/or infection with antibiotic-resistant organisms
Leadership commitment

• Write statements in support of improving antibiotic use to be shared with staff, residents and families
• Include stewardship-related duties in position descriptions for the medical director, clinical nurse leads, and consultant pharmacists in the facility
• Review ABS at QAA meetings
Leadership Commitment

• Communicate with nursing staff and prescribing clinicians the facility’s expectations about use of antibiotics and the monitoring and enforcement of stewardship policies

• Create a culture, through messaging, education, and celebrating improvement, which promotes antibiotic stewardship
Accountability

- Medical director sets standards for antibiotic prescribing practices and is accountable for overseeing adherence
- Director of nursing sets the practice standards for assessing, monitoring and communicating changes in a resident’s condition by front-line nursing staff
- Pharmacist supports antibiotic stewardship by antibiotic regimen review and reporting of antibiotic use data
Antibiotic Expertise

• Work with pharmacist who has received specialized antibiotic stewardship training.
• Partner with antibiotic stewardship program leads at your referral hospitals. (ER visits)
• Work with infectious disease consultants in your community.
Take Action through Policy and Practice Change

- Policies that support optimal antibiotic use – require documentation of indication for antibiotic
- Interventions to improve antibiotic use – antibiotic time out
- Pharmacists review all orders to confirm antibiotics are ordered appropriately
- Focus on problem areas/syndrome specific interventions – asymptomatic bacteriuria
Monitor and Reporting Antibiotic Use

• Review all new antibiotic starts for appropriateness (McGeer’s/NHSN)
• Track the amount of antibiotics used in your nursing home and days of therapy
  • CDC resource
• Monitor clinical outcomes such as rates of CDI, antibiotic-resistant organisms and adverse drug events
Education

- Provide antibiotic stewardship education to clinicians, nursing staff, residents and families
- Give feedback to providers on their prescribing practices as compared to others
- Engage residents and their family members (antibiotic is not always the answer and they come with risks)
- CDC has great posters, fact sheets and education
  - No need to reinvent the wheel
Survey Citations
What are we still missing?

Common survey citations – First quarter 2019
Tied for number one – F880, Infection Control Program designed to prevent the development and control of infection. (60 percent of these citations are for Hand Hygiene)

• Failure to clean hands or change gloves during cares
• Failure to clean hands during medication administration
• Resident(s) not offered hand washing before meals
Common Citations

Others include:

• Outbreak management
• Transmission-based Precautions and PPE
• Surveillance
• Cleaning and disinfection
Outbreak Management – Top Citations

• Line lists inaccurate or incomplete
• During an outbreak, did not restrict staff movement between units
• Did not identify onset of outbreak in a timely manner
Transmission-based Precautions and PPE – Top Citations

- Not wearing personal protective equipment or immediately disposing
- Resident not in transmission-based precautions when should have been
Surveillance – Top Citations

- Did not calculate rates of infection or analyze trends
- Line list did not contain all residents with potential infection
• Did not place barrier between surface and equipment
• Glucometer not disinfected appropriately
• Contamination of medications during med pass
Phase 3 – November 28, 2019
What is Required for Phase 3?

Phase 3 – November 28, 2019

The facility must designate one or more individual(s) as the IP(s).

The IP must:

1. Have primary professional training in nursing, medical technology, microbiology, epidemiology or other related field
2. Be qualified by education, training, experience or certification
3. Work at least part-time at the facility
4. Have completed specialized training in Infection prevention and control
5. The individual designated as the IP must be a member of the facilities quality assessment and assurance committee and report on the IPC Plan on a regular basis
WOW – There is a lot to learn!

Where can you learn more?

• CDC Infection Preventionist training [online](#)
• Association for Professionals in Infection Prevention & Epidemiology (APIC) [webpage](#)
• Wisconsin Healthcare-Associated Infections (HAI) in Long-Term Care Coalition [resources](#)
• Lake Superior Quality Innovation Network (Lake Superior QIN) [HAI webpage](#)
• Wisconsin Department of Health Services (DHS)
• Agency for Healthcare Research & Quality (AHRQ)
• Prevention Tools – [LTC CDC resources](#)
Additional Trainings Coming

- Infection Prevention Starter Kit – collaborative effort between Wisconsin DHS, MetaStar and other partners
- Training the next generation of Wisconsin LTC IP – Dr. Crnich group
- Quality Improvement Organizations (QIO) – Lake Superior Innovation Network, webinars, newsletters, Monthly EBlast, list serve
- Wisconsin DHS list serve
- Join APIC (fee)
How will I ever do all this?

- Continue to learn
- Network with your peers
- Utilize your QIO and state resources
- Reach out when you are struggling!
Questions?

Diane Dohm MT, IP, CIC, CPHQ
ddohm@metastar.com
608-441-8263

www.lsqin.org
www.metastar.com
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