When Airway was King: System Wide Implementation of the King Airway in a Urban/Rural EMS Service

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Scope of NMAS

- Urban/suburban/rural EM service
- Services @ 50% of Hennepin County and one-quarter of Minneapolis
- Covers @ 11,000 square miles of ALS services in Minnesota (also Wisconsin)
- @ 700 full and part time EMTs/EMTIs/EMTPs/RNs with varying call volumes (total 70,000 requests/year)
- Medical direction for numerous first responder agencies

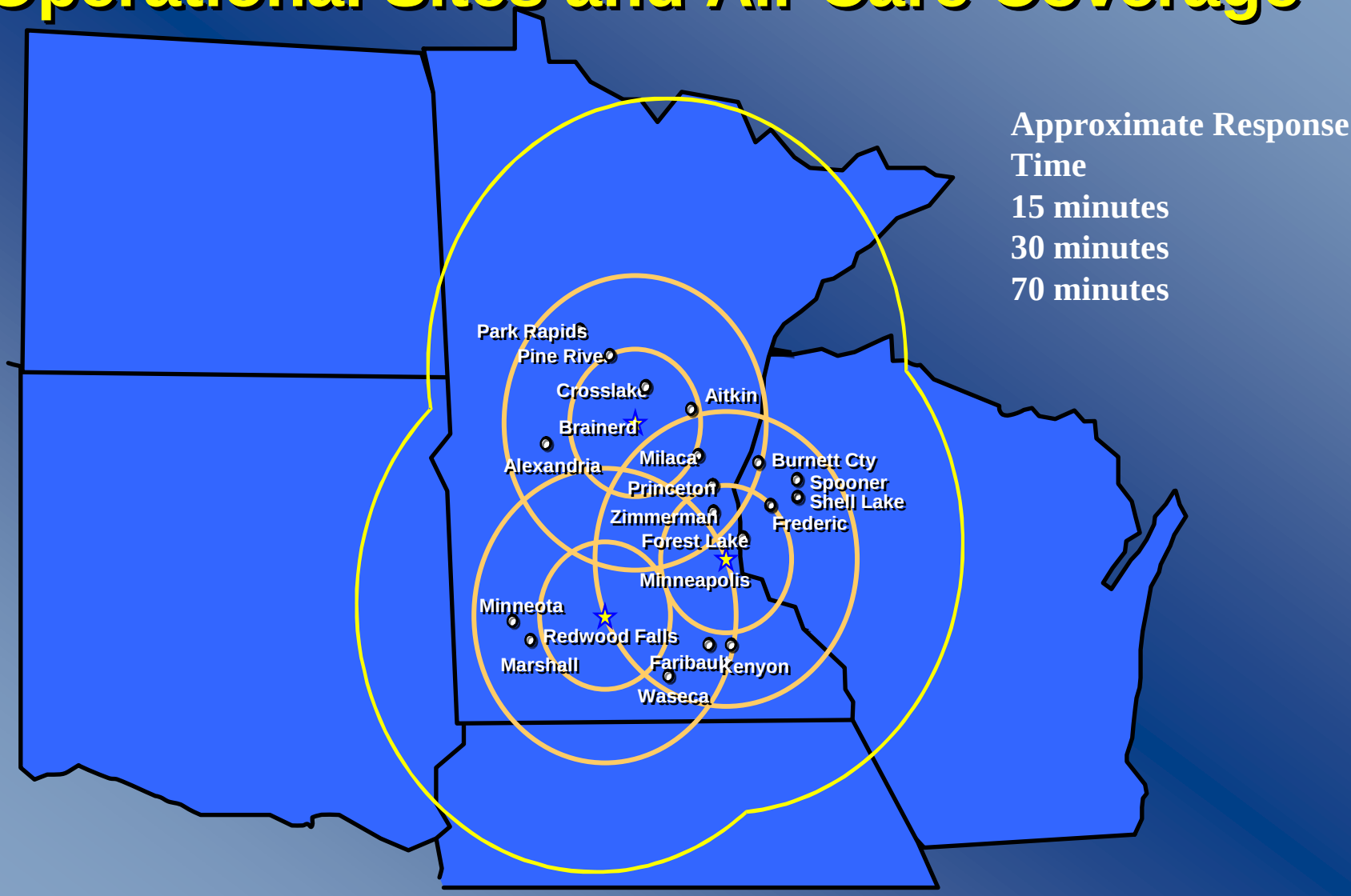
North Memorial Ambulance Service Operational Sites

Regions

Metro
Forest Lake
Brainerd
Princeton
Park Rapid
Douglas Co
Marshall
Faribault
Longville
Walker
Wisconsin

AirCare

North Memorial Ambulance Service Operational Sites and Air Care Coverage



Protocol objective

- Convert all services over 3 month period from Combitube SA to King airway LTS-D as airway adjunct/back up for ETT. Also main invasive airway for BLS services.
- Eight year experience with Combitube SA.
- Maintain and/or improve airway placement success rates.

Reasons for change

- Ongoing difficulty with Combitube use in low-volume services.
- Maintain uniform protocols through out service and allow personnel to shift service areas without equipment changes.
- Familiarize personnel with LTS-D #4 in adults, with eventual roll-out of smaller sizes for younger age groups.

Protocol change

- All personnel reviewed on-line learning materials for the King airway
- All personnel underwent two hour training course with mannequin practice placement and airway verification
- All newly hired staff underwent same training as they were integrated into the NMAS system

KA insertion protocol

- KA inserted into oropharynx at 90 degrees and rotated into position when advanced
- KA advanced to mouthpiece of aiway is at the teeth or until resistance is met
- KA inflated with 60 cc of air, and as mild PPV applied by BVM the airway is pulled back until BVM resistance decreases
- Additional 20 cc air added and OG tube placed in posterior port (mandatory for successful airway placement)
- Auscultate epigastrium, lung fields and EtCO2 confirmation

The next step

- King airways distributed to all service areas over a three month period
- Combitube SAs were phased out over the same time period, however some remained in service with first-responder agencies in some of our service areas
- Tracking of King airway insertion results was started in March, 2008. Combitube rates also continued to be tracked until their phase out

Airway insertion rates: First six months

- Combitube SA

  3/08-5/08
  29 out of 33 attempts
  87.8% success rate

  6/08-8/08
  20 out of 22 attempts
  91.1% success rate

- King Airway

  3/08-5/08
  1 out 1 attempts
  100% success rate!!!

  6/08-8/08
  30 out of 37 attempts
  81.1% success rate
  (damn!!!)

Protocol process review: Failure points

- Airway placement failure
  - Unable to visualize airway
  - Unable to advance airway
  - Unable to ventilate
  - Unable to verify placement and obtain EtCO2 reading
  - Unable to pass OG tube through posterior King airway port

Airway insertion rates: The next 3 months

- Combitube SA

  9/08-11/08

  5 out of 6 attempts

  83.3% success rate

  No tubes placed after 10/08 and 2 tubes placed by first responders

- King airway

  9/08-11/08

  31 out of 37 attempts

  83.8% success rate

  King Airway currently not approved for our first responders

Corrective action: practice, practice, practice

- All personnel required to repeat on-line training materials
- At monthly staff meetings all providers practiced proper KA placement and verification
- OG tubes were downsized to 16 French
- Tube tamers placed after OG tube placed
- Re-positioning of head/neck if unable to ventilate

Airway Insertion rates: The last 2 months

- Comitube SA

  None placed

- King airway

  12/08
  18 out of 23 attempts
  78.2% success rate

  1/09
  11 out of 12 attempts
  91.6% success rate

The final hurdle: What made the difference

- In 12/08, all stations received intubation heads and all staff required to place KA and ETT (if qualified) when on duty
- Based on honor system, and has been remarkably well accepted
- Personnel reports much more confidence in ability to place KA and comfort level
- Inter-service competition started and reinforces training

CONCLUSIONS:

- Initial poor success rates felt to be secondary to staff apprehension and lack of familiarity (out of the comfort zone)
- Close tracking and relatively quick corrective action has improved success rates
- Staff now much more confident in ability to use King airway
- Historical review of initial Combitube SA data reviewed similar levels of initial success rates; took over 2 years to reach > 90% success rate

The King with the King

QUESTIONS?

- Presentation developed in conjunction with

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  QA Supervisor

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