We previously reported on the sporadic contamination by *Legionella anisa* of shower units and sink taps at Ryukyu University Hospital. Starting in July 2003, the neonatal area underwent an 8-month reconstruction, and in March 2005, the boiler system was replaced. We therefore examined shower water and tap water for the presence of *Legionella* just after replacement of the boiler system. In 3 of the 8 water samples collected from the remodeled area, we isolated *Legionella pneumophila* serogroup 1 and *L. anisa*. Moreover, *L.pneumophila* serogroup 1 was isolated in 4 of the 5 water samples gathered from the unreconstructed area of the same floor. Random amplified polymorphic DNA analysis suggested that a single clone of *L. pneumophila* might exist throughout the floors of the water distribution system. We replaced the shower units at the *Legionella*-positive site, and began flushing the sink–faucets with water heated to 55°C for at least 1 h every morning. As a result, *Legionella* was not subsequently isolated in water samples. In this prospective study, we identified a central contamination by *L. pneumophila* serogroup 1 and showed that flushing with hot tap water was effective to counter this situation.