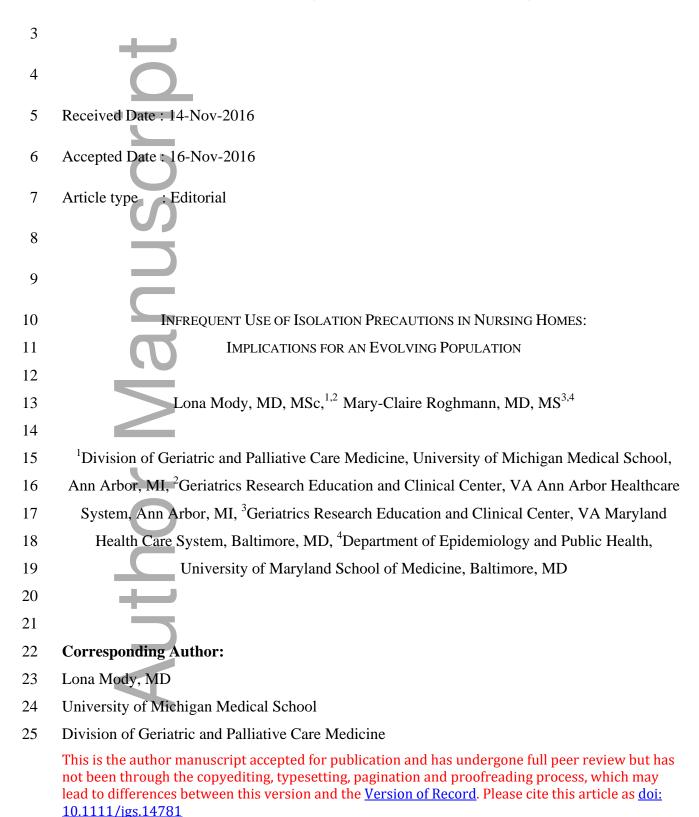
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34 Over 50% of nursing home residents harbor a multi-drug resistant organism (MDRO) without having any symptoms of infection, with rates exceeding those in acute care hospitals 35 including intensive care units.¹⁻⁸ When a nursing home resident develops a symptomatic 36 infection, it is often caused by an MDRO.⁹ Guidance from the Centers for Disease Control and 37 38 Prevention on the use of isolation practices in nursing homes suggests modified contact precautions based on case-mix.¹⁰ In acute care hospitals, contact precautions as defined by 39 isolation in a single room with use of gowns and gloves by healthcare workers during care is the 40 41 primary approach to preventing transmission of MDROs. However, prior studies have shown 42 that adoption of this strategy in nursing homes results in social stigma including feelings of "isolation" and constrain in a home-like environment.¹¹ Thus most nursing homes do not use 43 44 contact precautions for residents colonized with MDROs such as methicillin-resistant Staphylococcus aureus (MRSA) or vancomycin-resistant enterococcus (VRE).¹² 45

46 Because of growing concerns about MDRO transmission and infection in nursing homes, 47 active diagnosis of "MDRO infection" and the special procedure of "isolation for active 48 infectious disease" variables were added to the Minimum Data Set (MDS) in 2010. Cohen et al 49 in this issue, report on the use of isolation practice in nursing home residents with active MDRO infections using 2010-2013 data from the MDS.¹³ Overall the use of isolation was recorded in a 50 51 minority (13%) of residents with MDRO infections. Of note, needing support with ambulation 52 and eating, evidence of functional disability, having a urinary catheter, and dementia was 53 associated with an increase in isolation use for residents with MDRO infection. Higher levels of 54 staffing for RNs, LPNs and CNAs were all associated with lower isolation use in the nursing 55 home which begs the question -could an optimally functioning nursing home be rarely using 56 isolation precautions because highly trained staff and a favorable RN to resident ratio allows

57 staff to carefully weigh the consequences of isolation use, and consider alternative infection control methodologies? This study also found that nursing homes with a recent infection control 58 59 citation were more likely to use isolation for residents with an MDRO infection. Nursing homes 60 are a heavily regulated industry and citations and quality indicators remain the most effective 61 trigger to change practice. A salient example is the use of urinary catheters. Since the inclusion of urinary catheters as a quality indicator, their use has plummeted from 13% to 5%.^{14,15} 62 63 Similarly, resident immunization rates are publicly reported quality measures and approach 90%.¹⁶ As the evidence for how to best prevent the transmission of MDROs in nursing homes 64 65 emerges, quality indicators should be developed.

66 In this study, Cohen et al used secondary datasets which, although efficient, have a few 67 limitations. First, due to a look back period of last 15 days, clinically significant interval 68 changes are often not captured. Furthermore, the association between isolation and MDRO 69 infection is cross-sectional with the assumption that instituting isolation practices occurred after 70 the diagnosis of infection. Additionally, there is always the potential mismatch in timing between 71 the identification of the MDRO, the isolation precautions, and documentation on the MDS. 72 Residents could have been placed in isolation before an MDRO infection. What procedures 73 constituted isolation, the duration of isolation and if there were any adverse consequences of 74 isolation is unknown. That MDS does not record the type of MDRO infection is an additional 75 limitation. Future studies should validate these measures through chart reviews in order to further 76 characterize individual nursing home practices and adequately allocate financial and personnel resources.¹⁷ 77

78 Limitations notwithstanding, this study describes for the first time the prevalence and 79 variations in the use of isolation practices for MDRO infected residents in a national sample of 80 nursing homes. When placed in context with recently published papers, it highlights several key points regarding policies and practices to prevent transmission of MDROs in these settings. As 81 82 shown in this study targeting residents at high risk for new acquisition of an MDRO or 83 transmission of MDRO for others is an important strategy for preventing transmission because it 84 limits the negative consequences of isolation while preventing most transmission. We recently 85 demonstrated that MRSA colonized residents with chronic skin breakdown such as pressure 86 ulcers are more likely to transmit MRSA to healthcare worker gowns and gloves during high contact care than residents without skin breakdown.¹⁸ In a further cost analysis, we showed that 87

88 targeting these residents with chronic skin breakdown for increased gown and glove use was substantially less expensive than increased gown and glove use for all residents.¹⁹ In another 89 90 major cluster-randomized study, a multicomponent bundle targeting high risk residents with 91 indwelling devices and that included enhanced barrier precautions, interactive infection 92 prevention education and active surveillance with data feedback, reduced prevalence and new acquisition of MDROs as well as device-associated infections.^{1,20,21} It is also necessary to use 93 94 other strategies to contain the spread of pathogens among this susceptible and chronically ill 95 population. In addition to using enhanced barrier precautions for higher risk residents, such 96 strategies should include surveillance of significant pathogens and attention to environmental cleaning.²² 97

98 With the burgeoning short stay population, a number of infection prevention practices 99 including isolation precautions need to be revisited. The short stay population in nursing homes 100 closely resembles hospitalized patients. Although isolation for MDRO colonization is not a 101 common practice, more research on frequency, route and mechanism of MDRO transmission is 102 needed as a short stay population mingles with a long-stay population. The accompanying paper 103 is an important first step. Understanding the downstream consequences of MDRO colonization 104 and the adverse events and costs associated with the use of enhanced barrier precautions will be 105 important to drive future policy.

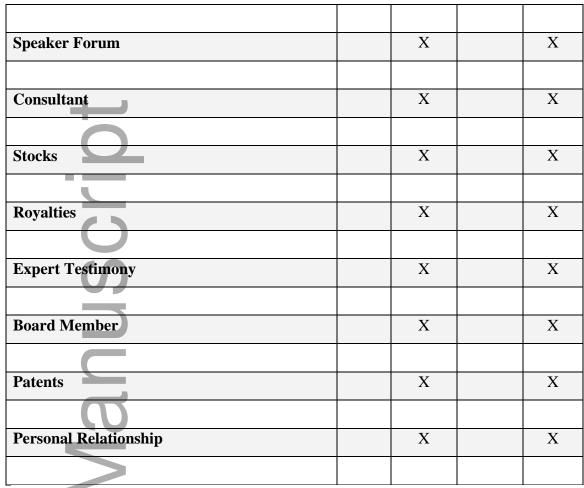
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108 Conflict of Interest Checklist:

Elements of Financial/Personal Conflicts	Author 1: LM		Author 2: MCR	
	Yes	No	Yes	No
Employment or Affiliation		Х		Х
Grants/Funds		Х		Х
Honoraria		X		Х

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109 For "yes", provide a brief explanation:

Author Contributions: Mody, Roghmann: concept and design; acquisition, analysis, and interpretation of data; drafting and revising the article critically for important intellectual content; analysis and interpretation of data; drafting and revising the article critically for important intellectual content. All authors reviewed and approved the submitted version of the article.

- 114
- 115 **Sponsor's Role:** The sponsor was not involved in the study design, methods, subject
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