

## ASSOCIATION UPDATE

# The Nairobi Declaration—Reducing the burden of dementia in low- and middle-income countries (LMICs): Declaration of the 2022 Symposium on Dementia and Brain Aging in LMICs

Delegates of the 2022 Symposium on Dementia and Brain Aging in Low- and Middle-Income Countries, representing over 40 countries, met in Nairobi, Kenya, December 5–9 to highlight advances in dementia prevention, diagnosis, care, and research, as well as explore the future needs of the global community.

Dementia poses a major threat to optimal brain health and remains a priority for the demographically ever-changing worldwide population. It incurs substantial individual, societal, and global costs. By 2030, the majority of the 78 million people with dementia will be living in low- and middle-income countries (LMICs). Upon consideration of these grave statistics and new diagnostic paradigms with available prevention and treatment strategies, we, the undersigned delegates, and the African Dementia Consortium (AfDC), with frontline and lived experience, call upon the global community, including governments, policymakers, international economic forums, health and social care providers, together with private and public research funding agencies, research-focused organizations such as universities, nongovernmental organizations, and technology and pharmaceutical companies, to act as follows:

- Rethink a global approach to dementia, being more focused on the diversity of undeserved and underrepresented populations.
- Shift the balance of investment further toward LMICs, which bear a high burden, to tackle the challenges and seize opportunities, to mitigate the burden of various forms of dementia, including Alzheimer's disease, vascular dementia, and others, globally.
- Engage and influence policymakers and advocacy organizations to encourage implementation and evaluation of population-level dementia risk reduction interventions at a more diverse global level.
- In addition to promoting education, controlling cardiovascular risk, and preventing stroke, seriously consider nutritional factors for brain health and longevity.
- Ensure that the health and social care systems are equipped to meet the needs of aging populations in the LMICs as well as low-resource settings in high-income countries (HICs).
- Support research into more affordable, pragmatic, and effective solutions to improve the quality of life of people living with dementia and reduce the expenses of hospitalization, long-term care, and loss of income and indirect costs resulting from dementia.
- Equip higher education institutions in HICs and LMICs with the capacity to develop a pipeline of local highly motivated early career

researchers (ECRs) to ensure future research will be responsive to local population needs and to leverage opportunities offered by different countries.

- Ensure a research framework with international collaboration that will unwind the rigid structures in LMICs and encourage young, enthusiastic people to give the best of their potential in their countries, thereby preventing brain drain.

We believe that timely intervention to address these goals will bring about significant and sustainable improvements in the prevalence, outcomes, and personal and societal impacts of dementia, resulting in a higher quality of life, better care, and global benefits.

Nairobi, Kenya, December 9, 2022

Organizing Committee and Speakers of the 2022 "Symposium on Dementia and Brain Aging in Low- and Middle-Income Countries."

Countries represented: Argentina, Benin, Botswana, Brazil, Burkina Faso, Canada, Cameroon, Colombia, Croatia, Democratic Republic of Congo, Dominican Republic, Egypt, Ethiopia, Finland, France, Germany, Ghana, Greece, India, Indonesia, Ireland, Italy, Japan, Jamaica, Kenya, Republic of Korea, Mozambique, Nepal, Netherlands, Nigeria, North Macedonia, Portugal, Singapore, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Tanzania, Tunisia, Uganda, United Kingdom, United States, Uzbekistan, Venezuela, Zimbabwe, Zambia.

Gladys Maestre<sup>1</sup>

Maria Carrillo<sup>2</sup>

Raj Kalaria<sup>3</sup>

Daisy Acosta<sup>4</sup>

Larry Adams<sup>5</sup>

Thierry Adoukonou<sup>6</sup>

Kazeem Akinwande<sup>7</sup>

Joshua Akinyemi<sup>8</sup>

Rufus Akinyemi<sup>9</sup>

Onoja Akpa<sup>10</sup>

Suvarna Alladi<sup>11</sup>

Ricardo Allegri<sup>12</sup>

Raul Arizaga<sup>13</sup>

Faheem Arshad<sup>14</sup>

Oyedunni Arulogun<sup>15</sup>

David Babalola<sup>16</sup>

Olusegun Baiyewu<sup>17</sup>

- Thomas Bak<sup>18</sup>  
Tarek Bellaj<sup>19</sup>  
Judith Boshe<sup>20</sup>  
Carol Brayne<sup>21</sup>  
David Brodie-Mends<sup>22</sup>  
Richard Brown<sup>23</sup>  
Jennifer Cahn<sup>24</sup>  
Nkouonlack Cyrille<sup>25</sup>  
Albertino Damasceno<sup>26</sup>  
Ranil de Silva<sup>27</sup>  
Rohan de Silva<sup>28</sup>  
Mamuka Djibuti<sup>29</sup>  
Anna Jane Dreyer<sup>30</sup>  
Ratnavalli Ellajosyula<sup>31</sup>  
Temitope Farombi<sup>32</sup>  
Bernard Fongang<sup>33</sup>  
Stefania Forner<sup>34</sup>  
Rob Friedland<sup>35</sup>  
Noe Garza<sup>36</sup>  
Antoine Gbessemehlan<sup>37</sup>  
Eliza (Eleni- Zacharoula) Georgiou<sup>38</sup>  
Riadh Gouider<sup>39</sup>  
Ishtar Govia<sup>40</sup>  
Lea Grinberg<sup>41</sup>  
Maëleonn Guerchet<sup>42</sup>  
Seid Gugssa<sup>43</sup>  
Joy Louise Gumikiriza-Onoria<sup>44</sup>  
Deborah Gustafson<sup>45</sup>  
Eef Hogervorst<sup>46</sup>  
Michael Hornberger<sup>47</sup>  
Agustin Ibanez<sup>48</sup>  
Masafumi Ihara<sup>49</sup>  
Ozama Ismail<sup>50</sup>  
Thomas Issac<sup>51</sup>  
Linus Jönsson<sup>52</sup>  
Celestin Kaputu<sup>53</sup>  
Wambui Karanja<sup>54</sup>  
Jackline Karungi<sup>55</sup>  
Desire Katumbay-Tshala<sup>56</sup>  
Brian Kunkle<sup>57</sup>  
Joseph H Lee<sup>58</sup>  
Iracema Leroi<sup>59</sup>  
Raphaella Lewis<sup>60</sup>  
Gill Livingston<sup>61</sup>  
Francisco Lopera<sup>62</sup>  
Kamada Lwere<sup>63</sup>  
Facundo Manes<sup>64</sup>  
Damali Martin<sup>65</sup>  
Lingani Mbakile-Mahlanza<sup>66</sup>  
Pedro Mena<sup>67</sup>  
Bruce Miller<sup>68</sup>  
Athanas Millogo<sup>69</sup>  
Abdul Mohamed<sup>70</sup>  
Christine Musyimi<sup>71</sup>  
Victoria Mutiso<sup>72</sup>  
Noeline Nakasujja<sup>73</sup>  
David Ndetei<sup>74</sup>  
Sam Nightingale<sup>75</sup>  
Alfred K. Njamshi<sup>76</sup>  
Gabriela Novotni<sup>77</sup>  
Primrose Nyamayaro<sup>78</sup>  
Solomon Nyame<sup>79</sup>  
Julius Ogeng'o<sup>80</sup>  
Adesola Ogunniyi<sup>81</sup>  
Maira Okada De Oliveira<sup>82</sup>  
Njideka Okubadejo<sup>83</sup>  
Martin Orrell<sup>84</sup>  
Akintunde Orunmuyi<sup>85</sup>  
Stella Paddick<sup>86</sup>  
Margaret A Pericak-Vance<sup>87</sup>  
Zvezdan Pirtosek<sup>88</sup>  
Felix Potocnik<sup>89</sup>  
Camille Pottinger<sup>90</sup>  
Bill Preston<sup>91</sup>  
Rema Raman<sup>92</sup>  
Kirti Ranchod<sup>93</sup>  
Mie Rizig<sup>94</sup>  
Monica Rosselli<sup>95</sup>  
Roy Deepa<sup>96</sup>  
Upal Roy<sup>97</sup>  
Marufjon Salokhiddinov<sup>98</sup>  
Mary Sano<sup>99</sup>  
Fred Sarfo<sup>100</sup>  
Claudia Satizabal<sup>101</sup>  
Diego Sepulveda-Falla<sup>102</sup>  
Sudha Seshadri<sup>103</sup>  
Claire Sexton<sup>104</sup>  
Ingmar Skoog<sup>105</sup>  
Peter St George-Hyslop<sup>106</sup>  
Claudia Suemoto<sup>107</sup>  
Jeremy Tanner<sup>108</sup>  
Prekshya Thapa<sup>109</sup>  
Kamadore Toure<sup>110</sup>  
Valentine Ucheagwu<sup>111</sup>  
Chinedu Udeh-Momoh<sup>112</sup>  
Victor Valcour<sup>113</sup>  
Jeffery Vance<sup>114</sup>  
Mathew Varghese<sup>115</sup>  
Jaime Vera<sup>116</sup>  
Richard Walker<sup>117</sup>  
Wendy Weidner<sup>118</sup>  
Walsh Sebastian<sup>119</sup>  
Patrice Whitehead Gay<sup>120</sup>  
Henrik Zetterberg<sup>121</sup>

Yared Zewde<sup>122,123</sup>

- <sup>1</sup>Departments of Neuroscience and Human Genetics, University of Texas Rio Grande Valley, Brownsville, TX, USA
- <sup>2</sup>Alzheimer's Association, Chicago, IL, USA
- <sup>3</sup>Translational and Clinical Research Institute, Newcastle University, Campus for Ageing and Vitality, Newcastle upon Tyne, UK
- <sup>4</sup>Internal Medicine Department, Universidad Nacional Pedro Henríquez Ureña, Santo Domingo, Dominican Republic
- <sup>5</sup>Institute of Human Genomics, University of Miami, Miami, FL, USA
- <sup>6</sup>Department of Neurology, University of Parakou, Parakou, Benin
- <sup>7</sup>Department of Chemical Pathology and Immunology, Federal Medical Centre, Abeokuta, Nigeria
- <sup>8</sup>College of Medicine, University of Ibadan, Ibadan, Nigeria
- <sup>9</sup>Institute for Advanced Medical Research and Training, University of Ibadan, Ibadan, Nigeria
- <sup>10</sup>College of Medicine, University of Ibadan, Ibadan, Nigeria
- <sup>11</sup>Department of Neurology, NIMHANS, Bangalore, India
- <sup>12</sup>Neuropsiquiatría y Neuropsicología, Departamento de Neurología, Buenos Aires, Argentina
- <sup>13</sup>Neurología Cognitiva y Neuropsicología, Hospital Dr. Cesar Milstein, Buenos Aires, Argentina
- <sup>14</sup>Department of Neurology, NIMHANS, Bengaluru, India
- <sup>15</sup>Department of Health Promotion and Education, University of Ibadan, Ibadan, Nigeria
- <sup>16</sup>University College Hospital, University of Ibadan, Ibadan, Nigeria
- <sup>17</sup>Department of Psychiatry, University of Ibadan, Ibadan, Nigeria
- <sup>18</sup>Department of Neurology, University of Edinburgh, Edinburgh, UK
- <sup>19</sup>Department of Psychological Sciences, Qatar University, Doha, Qatar
- <sup>20</sup>Department of Medicine, Kilimanjaro Christian Medical College, Moshi, Tanzania
- <sup>21</sup>Cambridge Public Health, University of Cambridge, Cambridge, UK
- <sup>22</sup>Department of Medicine, Korle-Bu Teaching Hospital, Accra, Ghana
- <sup>23</sup>Department of Psychology, Dalhousie University, Halifax, Canada
- <sup>24</sup>Departments of Neuroscience and Human Genetics, University of Texas Rio Grande Valley, Brownsville, TX, USA
- <sup>25</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon
- <sup>26</sup>Department of Medicine, University of Maputo, Maputo, Mozambique
- <sup>27</sup>Faculty of Medical Sciences, University of Sri Jayewardenepura, Rathmalana, Sri Lanka
- <sup>28</sup>Institute of Neurology, University College London, London, UK
- <sup>29</sup>Partnership for Research and Action for Health, Tbilisi, Georgia
- <sup>30</sup>Department of Psychiatry and Mental Health, University of Cape Town, Cape Town, South Africa
- <sup>31</sup>Department of Neurology, Manipal Hospitals, Bangalore, India
- <sup>32</sup>Department of Neurology, University of Ibadan, Ibadan, Nigeria
- <sup>33</sup>Glenn Biggs Institute, University of Texas, San Antonio, TX, USA
- <sup>34</sup>Alzheimer's Association, Chicago, IL, USA
- <sup>35</sup>Department of Neurology, University of Louisville, Louisville, USA
- <sup>36</sup>Departments of Neuroscience and Human Genetics, University of Texas Rio Grande Valley, Harlingen, TX, USA
- <sup>37</sup>institute of Epidemiology and Tropical Neurology, University of Limoges, Bordeaux, France
- <sup>38</sup>Department of Psychiatry, Medicine, University of Patras, Patras, Greece
- <sup>39</sup>Neurology Department, Razi University Hospital, Tunis, Tunisia
- <sup>40</sup>Caribbean Institute for Health Research, University of the West Indies, Kingston, Jamaica
- <sup>41</sup>Department of Pathology, University of San Francisco, San Francisco, CA, USA
- <sup>42</sup>EpiMaCT—Faculté de Médecine, University of Limoges, Limoges, France
- <sup>43</sup>Department of Neurology, Addis Ababa University, Addis Ababa, Ethiopia
- <sup>44</sup>Department of Psychiatry, Makerere University, Kampala, Uganda
- <sup>45</sup>Department of Neurology, State University of New York Downstate Health Sciences University, Brooklyn, NY, USA
- <sup>46</sup>Department of Psychology, University of Loughborough, Loughborough, UK
- <sup>47</sup>Department of Neurology, University of East Anglia, Norwich, UK
- <sup>48</sup>Global Brain Health Institute, Trinity College, Dublin, Ireland
- <sup>49</sup>Department of Neurology, National Cerebral and Cardiovascular Center, Suita, Japan
- <sup>50</sup>Alzheimer's Association, Chicago, IL, USA
- <sup>51</sup>Department of Neurology, NIMHANS, Bangalore, India
- <sup>52</sup>Department of Psychiatry, Karolinska Institutet, Stockholm, Sweden
- <sup>53</sup>Department of Neurology, University of Kinshasa, Kinshasa, Democratic Republic of the Congo
- <sup>54</sup>Global Brain Health Institute, Trinity College, Nairobi, Kenya
- <sup>55</sup>Department of Psychiatry, Makerere University, Kampala, Uganda
- <sup>56</sup>Department of Neurology, Oregon State University of Health Sciences, Portland, OR, USA
- <sup>57</sup>Institute of Human Genomics, University of Miami, Miami, FL, USA
- <sup>58</sup>Sergievsky Center, Columbia University: Investment Management Company, New York, NY, USA
- <sup>59</sup>TCIN, Lloyd Building, Trinity College, Dublin, Ireland
- <sup>60</sup>Department of Psychology, University of Cape Town, Cape Town, South Africa
- <sup>61</sup>Department of Psychiatry, University College London, London, UK
- <sup>62</sup>Grupo de Neurociencias de Antioquia, Universidad de Antioquia, Medellin, Colombia
- <sup>63</sup>Department of Medical Microbiology, Makerere University, Mulago, Uganda
- <sup>64</sup>Institute of Cognitive and Translational Neuroscience (INCYT), INECO Foundation, Favaloro University, Buenos Aires, Argentina
- <sup>65</sup>Division of Neuroscience, National Institute on Aging, Bethesda, MD, USA
- <sup>66</sup>Department of Psychology, University of Botswana, Gabrone, Botswana
- <sup>67</sup>Institute of Human Genomics, University of Miami, Miami, FL, USA
- <sup>68</sup>Department of Neurology, University of San Francisco, San Francisco, CA, USA
- <sup>69</sup>Department of Neurology, University of Ouagadougou, Ouagadougou, Burkina Faso
- <sup>70</sup>Department of Psychology, Linnaeus University, Vaxjo, Sweden
- <sup>71</sup>African Mental Health Research & Training Foundation, Nairobi, Kenya

- <sup>72</sup>African Mental Health Research & Training Foundation, Nairobi, Kenya
- <sup>73</sup>Department of Psychiatry, Makerere University, Kampala, Uganda
- <sup>74</sup>Africa Mental Health Research and Training Foundation and University of Nairobi, Nairobi, Kenya
- <sup>75</sup>Department of Neurology, University of Cape Town, Cape Town, South Africa
- <sup>76</sup>Department of Neurology, University of Yaoundé, YAOUNDE, Cameroon
- <sup>77</sup>Department of Neurology, University Ss. Cyril and Methodius, Skopje, North Macedonia
- <sup>78</sup>Department of Psychology, University of Harare, Harare, Zimbabwe
- <sup>79</sup>Kintampo Health Research Centre, Ghana Health Service, Kintampo, Ghana
- <sup>80</sup>Department of Human Anatomy & Medical Physiology, University of Nairobi, Nairobi, Kenya
- <sup>81</sup>Department of Medicine, University of Ibadan, IBADAN, Nigeria
- <sup>82</sup>Cognitive and Behavioral Neurology Unit, University of São Paulo, São Paulo, SP, Brazil
- <sup>83</sup>Department of Neurology, University of Lagos & Lagos University Teaching Hospital, Lagos, Nigeria
- <sup>84</sup>Institute of Mental Health, University of Nottingham, Nottingham, UK
- <sup>85</sup>Integrated Molecular Imaging Centre, Kenyatta University, Nairobi, Kenya
- <sup>86</sup>Translational and Clinical Research Institute, Newcastle University, Newcastle upon Tyne, UK
- <sup>87</sup>Institute of Human Genomics, University of Miami, Miami, FL, USA
- <sup>88</sup>Department of Neurology, Ljubljana University Medical Centre, Ljubljana, Slovenia
- <sup>89</sup>Department of Geriatric Psychiatry, Stellenbosch University, Durbanville, South Africa
- <sup>90</sup>Division of Neuroscience, National Institute on Aging, Bethesda, MD, USA
- <sup>91</sup>Roots Worldwide LLC and Innovative California Biosciences International Inc, Fullerton, CA, USA
- <sup>92</sup>Department of Population and Public Health Sciences, University of Southern California, San Diego, CA, USA
- <sup>93</sup>Global Brain Health Institute, Trinity College, Johannesburg, South Africa
- <sup>94</sup>UCL Queen Square Institute of Neurology, London, UK
- <sup>95</sup>Department of Psychology, Florida Atlantic University, Miami, FL, USA
- <sup>96</sup>Department of Neuroscience, The University of Texas Rio Grande Valley, Brownsville, TX, USA
- <sup>97</sup>Department of Neuroscience, The University of Texas Rio Grande Valley, Brownsville, TX, USA
- <sup>98</sup>Zangiota-2 Clinical Hospital, Tashkent Medical Academy, Tashkent, Uzbekistan
- <sup>99</sup>Alzheimer's Disease Center, Mount Sinai School of Medicine, Bronx, NY, USA
- <sup>100</sup>Department of Medicine, Kwame Nkrumah University of Science & Technology, Kumasi, Ghana
- <sup>101</sup>Glenn Biggs Institute, University of Texas, San Antonio, TX, USA
- <sup>102</sup>Institute of Neuropathology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany
- <sup>103</sup>Glenn Biggs Institute, University of Texas, San Antonio, MA, USA
- <sup>104</sup>Alzheimer's Association, Chicago, IL, USA
- <sup>105</sup>Center of Health and Aging (AgeCap), University of Gothenburg, Goteborg, Sweden
- <sup>106</sup>Tanz Centre for Research in Neurodegenerative Diseases and Division of Neurology, University of Toronto, Toronto, Canada
- <sup>107</sup>Division of Geriatrics, Universidade de São Paulo, São Paulo, Brazil
- <sup>108</sup>Glenn Biggs Institute, University of Texas, San Antonio, TX, USA
- <sup>109</sup>Department of Psychiatric Nursing, B.P. Koirala Institute of Health Sciences, Dharan, Nepal
- <sup>110</sup>Department of Neurology, Université de Thiès, Thies, Senegal
- <sup>111</sup>Global Brain Health Institute, Trinity College, Onitsha, Nigeria
- <sup>112</sup>School of Public Health, Imperial College London, Worcester Park, UK
- <sup>113</sup>Global Brain Health Institute, University of San Francisco, San Francisco, CA, USA
- <sup>114</sup>Institute of Human Genomics, University of Miami, Miami, FL, USA
- <sup>115</sup>Department of Psychiatry, St John's Medical College, Bangalore, India
- <sup>116</sup>Brighton and Sussex Medical School, University of Sussex, Brighton, UK
- <sup>117</sup>Department of Medicine, North Tyneside General Hospital, North Shields, UK
- <sup>118</sup>Alzheimer's Disease International, London, UK
- <sup>119</sup>Cambridge Public Health, University of Cambridge, Cambridge, UK
- <sup>120</sup>Institute of Human Genomics, University of Miami, Miami, FL, USA
- <sup>121</sup>Clinical Neurochemistry Laboratory, Moelndal Hospital, Moelndal, Sweden
- <sup>122</sup>Department of Neurology, University of Addis Ababa, Addis Ababa, Ethiopia
- <sup>123</sup>The African Dementia Consortium, University of Ibadan, Ibadan, Nigeria

#### Correspondence

Raj Kalaria, Translational and Clinical Research Institute, Newcastle University, Campus for Ageing and Vitality, Newcastle upon Tyne NE4 5PL, United Kingdom.

Email: [raj.kalaria@newcastle.ac.uk](mailto:raj.kalaria@newcastle.ac.uk)