Intranasal deposition of aerosols inhaled via the nose is often assessed using in vitro nasal models, more or less close to human nasal anatomy: nasal casts, cadaver head, nasal stereolithography, SAINT model. From these nasal models conclusions are made about nasal aerosol deposition into human nasal cavities. To our knowledge, although the development of these models is rigorous, they have never been tested for their ability to predict in vivo aerosol deposition. The present study evaluates the relevance of using a nasal cast to assess in vivo nasal aerosol deposition, by an in vivo /in vitro comparative method, using healthy volunteers and a plastinated head model. Nebulisations with $^{99m}$Tc-DTPA were performed in vivo and in vitro, with two nebulisers: the NL11SN and the Easynose. In vivo aerosol administration conditions were reproduced in the in vitro model. Aerosol deposition was quantified in nasal cavities, ethmoid and maxillary sinuses regions, by scintigraphy. The aerosol distribution deposited into nasal cavities was also evaluated by image processing with ImageJ. No statistical difference was found between in vitro model and volunteers in terms of the aerosol deposition. Aerosol distributions into volunteers and in vitro nasal cavities were similar. Results mainly showed that the plastinated head model is relevant to predict the deposition of nasal aerosol in human nasal cavities. The aerosol deposition pattern of each nebuliser was reproduced in volunteers and in the in vitro model. The plastinated head model can be used as a nasal cast to develop and validate new nasal nebulisers.