Innate immune reactivity to dental alloys

Use of metals in dentistry is quite common: for example braces, crowns, fillings, implants. Oral exposure to metals and metal alloys is frequently associated with local and systemic adverse reactions. Problems sometimes occur, such as allergy, locally inflamed mucous membrane, or vague symptoms throughout the entire human body. However, alternatives such as methacrylate likely will never completely replace metals, since their characteristics do not always meet all clinical requirements. The study presented in the thesis of Dessy Rachmawati highlights mechanisms by which dentally applied metals can cause irritation, inflammation, or allergy. Additionally, the question is addressed why some metals, such as nickel, are known to be strong sensitizers while others seldom cause allergy. This thesis contributes to the understanding why metal-sensitivity occurs so frequently and can help the researcher, dentist, and patient to become more aware of the potential health effects of dental alloys. This information may also be useful for dentists with selection of alloys that have minimal immune stimulatory capacity. The results of this thesis can contribute to a rational basis for future guidelines on the use of metal alloys in the oral cavity.