



# Health Research Board

## Application Form

### Summary

<b>Reference</b>	1238
<b>Title</b>	An antimicrobial susceptibility testing-based approach for <i>Helicobacter pylori</i> eradication: will tailored therapy overcome the increasing failure of standard empirical therapy?
<b>Principal Investigator</b>	Professor Deirdre McNamara
<b>Co-Applicants</b>	Dr Sinead Smith
<b>Host Institution</b>	Trinity College Dublin
<b>Duration (months)</b>	36
<b>Budget Total (€)</b>	181,570.00
<b>Abstract</b>	<p><i>Helicobacter pylori</i> infects approximately half of the world's population. Prevalence of <i>H. pylori</i> infection varies globally but increases with older age and with lower socioeconomic status. It remains one of the most common infections in Ireland with infection rates of approximately 22%. <i>H. pylori</i> infection is the major cause of peptic ulcer disease and gastric cancers. Eradication of <i>Helicobacter pylori</i> is recommended in all symptomatic patients. Standard triple therapy with an acid suppressing proton pump inhibitor, and a dual antibiotic combination with amoxicillin and either metronidazole or clarithromycin remains the first-line treatment. In recent years, treatment success rates have fallen significantly below the 80% recommended by the Maastricht IV Consensus guidelines for the management of <i>H. pylori</i> infection. This is in line with a rapid increase in antibiotic resistance, in particular to clarithromycin, with second line and sequential treatments involving levofloxacin, tetracycline or rifabutin often required. The European <i>Helicobacter</i> Study Group now recommends that clarithromycin should be abolished from standard anti-<i>H. pylori</i> regimens once resistance rates reach 15-20% and have advised local surveillance and monitoring of antibiotic resistance to guide clinicians and improve eradication rates. Through a multicentre and multi-disciplinary approach, this proposal aims to prospectively assess the prevalence of <i>H. pylori</i> antibiotic resistance in patient's naïve for <i>H. pylori</i> eradication therapy, using standard culture and antimicrobial susceptibility testing methods, as well as recently developed molecular tests. The impact of previous antibiotic use on primary antibiotic resistance will be determined. The efficacy of tailored treatment based on resistance data on <i>H. pylori</i> eradication will be compared to that of standard first-line triple therapy, with a view to improving treatment success rates. The expertise we develop will guide clinicians in their therapeutic choice, with a view to achieving improved <i>H. pylori</i> eradication rates and thereby better disease prevention and control.</p>